**BSc Digital Filmmaking & VFX**

**Duration of the Programme: 3 Years Full-time (6 semesters)**

**Program Description:**

The program aims to help the students understand the world of VFX and Digital Film making. This program offers Degree Certification in Digital Film making & VFX. The duration of this program is 3 years (6 Semester). In addition to introducing students to the world of 3D digital art and VFX visualization, this program exposes students to Industry relevant software’s. On successful completion of the program, students can continue their learning further to a professional level within Digital Filmmaking and VFX production design

**Growth in the media & entertainment industry:**

* Media & Entertainment Industry in India to reach Rs1457 billion by 2016.
* Average time spent watching television in India is 2.55 hrs/day. One of the highest in the world.
* TV households in India‐226 million.
* More than500 Television channels are no available in India.
* Subscriber base of cable & satellite TV to reach 155.8 Million by 2015.
* Advertising spends across all me ditto cross Rs.540 Billion by 2015.
* 28 Million Households DTH subscribers base in India.
* 107 Million Copies of newspapers circulated daily accounting for than 20% of all dailies in the world.
* Indian film industry is pegged at 83.3 Billion INR and produces more movies than Hollywood every year.
* 3 Billion Movie goers annually across 12,000 movie screens.
* 20% films released in India are Hollywood films.
* **Mission Impossible: Ghost Protocol** and **The Adventures of Tintin :The Secret Of The Unicorn** released in India before they did in the U.S
* Radio industry has clocked revenues of 10 Billion INR and is growing @ 20 % CAGR.
* Digital sales of music contributes 42% of total revenues of the music industry in India and share will be almost 80% by 2015.
* Music related VAS forms 56% of non‐voice revenues for the telecom industry.
* Marketers spent approximatelyINR16.5 billion in2010 on Out of home Advertising.
* Animation, VFX and postproduction industry to reach Rs23.6 Billion by 2015.

**Career Opportunities**

* Associate Producer
* Executive Producer
* Co‐Producer
* Line Producer
* Producer
* Production Controller
* Production Executive or Manager
* Director
* First Assistant Director
* Creative Director
* Associate & Assistant Director
* Production Runner
* Casting Director
* Chief Asst. Director
* Operative Camera Man
* Assistant Cinematographer
* Assistant/Associate Cameraman
* Director of Photography(DOP) / Asst.DOP
* Production Designer
* Purchase Manager

**Semester: First**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sl.No.** | **Subject Code** | **Subject** | **Credit Structure / Teaching Scheme** | | | **Evaluation Scheme Marks** | | **Hours** | **Credit** |
| **L** | **T** | **P** | **ESE** | **Sessional** |  |  |
| **THEORY** | 1 | BSCDFMVFX101 | English I | 3 | 0 | 0 | 60 | 40 | 3 | 3 |
| 2 | BSCDFMVFX102 | Environment Studies | 3 | 0 | 0 | 60 | 40 | 3 | 3 |
| 3 | BSCDFMVFX103 | Introduction  to History of Art | 3 | 0 | 1 | 60 | 40 | 5 | 4 |
| 4 | BSCDFMVFX104 | Introduction  to Cinema & Film Appreciation | 3 | 0 | 1 | 60 | 40 | 5 | 4 |
| **PRACTICAL** | 5 | BSCDFMVFX115 | Basics  of Photography | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 6 | BSCDFMVFX116 | Basics of Practical Film Making | 0 | 0 | 4 | 60 | 40 | 8 | 4 |
| **Total** | | |  |  |  |  |  |  |  | **22** |

**Semester: Second**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sl.No.** | **Subject Code** | **Subject** | **Credit Structure / Teaching Scheme** | | | **Evaluation Scheme Marks** | | **Hours** | **Credit** |
| **L** | **T** | **P** | **ESE** | **Sessional** |  |  |
| **THEORY** | 1 | BSCDFMVFX201 | English II | 3 | 0 | 0 | 60 | 40 | 3 | 3 |
| 2 | BSCDFMVFX202 | Writing for Visual Media | 3 | 0 | 0 | 60 | 40 | 3 | 3 |
| 3 | BSCDFMVFX203 | Concept of  Story Boarding | 3 | 0 | 2 | 60 | 40 | 7 | 5 |
| 4 | BSCDFMVFX204 | Production Design | 2 | 0 | 1 | 60 | 40 | 4 | 3 |
| **PRACTICAL** | 5 | BSCDFMVFX215 | Basics of Cinematography – I | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 6 | BSCDFMVFX216 | Basics of Documentary Film Making | 0 | 0 | 4 | 60 | 40 | 8 | 4 |
| **Total** | | |  |  |  |  |  |  |  | **22** |

**Semester: Third**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sl.**  **No.** | **Subject Code** | **Subject** | **Credit Structure / Teaching Scheme** | | | **Evaluation Scheme Marks** | | **Hours** | **Credit** |
| **L** | **T** | **P** | **ESE** | **Sessional** |  |  |
| **PRACTICAL** | 1 | BSCDFMVFX311 | 3D Lab I | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 2 | BSCDFMVFX312 | Importance of Sound & Sound Special Effects | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 3 | BSCDFMVFX313 | Editing Concepts | 0 | 0 | 3 | 60 | 40 | 6 | 3 |
| 4 | BSCDFMVFX304 | 3D Dynamics | 0 | 0 | 3 | 60 | 40 | 6 | 3 |
| 5 | BSCDFMVFX305 | Basics of  Cinematography – II | 1 | 0 | 2 | 60 | 40 | 5 | 3 |
| 6 | BSCDFMVFX306 | Intermediate Practical Film Making | 0 | 0 | 3 | 60 | 40 | 6 | 3 |
| **Total** | | |  |  |  |  |  |  |  | **20** |

**Semester: Fourth**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sl.**  **No.** | **Subject Code** | **Subject** | **Credit Structure / Teaching Scheme** | | | **Evaluation Scheme Marks** | | **Hours** | **Credit** |
| **L** | **T** | **P** | **ESE** | **Sessional** |  |  |
| **PRACTICAL** | 1 | BSCDFMVFX401 | Introduction to Direction For Films & Television | 1 | 0 | 2 | 60 | 40 | 5 | 3 |
| 2 | BSCDFMVFX402 | 3D Lab II | 0 | 0 | 3 | 60 | 40 | 6 | 3 |
| 3 | BSCDFMVFX403 | Digital Compositing I | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 4 | BSCDFMVFX404 | Matte Painting | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 5 | BSCDFMVFX405 | Lighting and Rendering | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 6 | BSCDFMVFX406 | Advertisement Film Making | 0 | 0 | 3 | 60 | 40 | 6 | 4 |
| **Total** | | |  |  |  |  |  |  |  | **22** |

**Semester: Fifth**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sl.No** | **Subject Code** | **Subject** | **Credit Structure / Teaching Scheme** | | | **Evaluation Scheme Marks** | | **Hours** | **Credit** |
| **L** | **T** | **P** | **ESE** | **Sessional** |  |  |
| **THEORY** | 1 | BSCDFMVFX501 | Media Laws – An Overview | 3 | 0 | 0 | 60 | 40 | 3 | 3 |
| 2 | BSCDFMVFX502 | Overview - Media and New Media Business | 3 | 0 | 0 | 60 | 40 | 3 | 3 |
| 3 | BSCDFMVFX503 | Basics of  Marketing & Publicity Design | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| **PRACTICAL** | 4 | BSCDFMVFX511 | Digital Compositing II | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 5 | BSCDFMVFX512 | Rotoscopy and Keying | 2 | 0 | 2 | 60 | 40 | 6 | 4 |
| 6 | BSCDFMVFX513 | Advanced Practical Film Making | 0 | 0 | 3 | 60 | 40 | 6 | 3 |
| **Total** | | |  |  |  |  |  |  |  | **21** |

**Semester: Sixth**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sl.No.** | **Subject Code** | **Subject** | **Credit Structure / Teaching Scheme** | | | **Evaluation Scheme Marks** | | **Hours** | **Credit** |
| **L** | **T** | **P** | **ESE** | **Sessional** |  |  |
| **FIELD/ PROJECT WORK** | 1 | BSCDFMVFX621 | Final Project [Portfolio & Thesis] | 0 | 0 | 10 | 35 | 65 | 20 | 10 |
| 2 | Viva | 0 | 0 | 2 |  | 2 |
| 3 | Project Report | 0 | 0 | 4 |  | 4 |
| **Total** | | |  |  |  |  |  |  |  | **16** |

**Total Credits: 123**

**Semester I**

**Course: English I (Assam DownTown University Syllabus)**

**Course: Environment Studies (Assam DownTown University Syllabus)**

**Course:** **Introduction to History of Art**

**Objectives:**

* To understand the basics of Music, dance and theatre.
* To learn to differentiate between various genres of music, dance and theatre.
* To understand basics of contemporary music, dance & theatre.
* To learn the basics of various acting schools and the art of drama.
* To learn the basic relationship between music and dance in relation to Film making.

**Unit I – Music:** Genres of Music, Introduction to Contemporary Music (Hindi, Regional & POP), Electronic Music & EDM, Music Directors & Composers

**Unit II – Dance:** Genres of Dance (Folk, Contemporary, Salsa, etc), Contemporary Dance, Dance Maestros

**Unit III – Theatre:** The development of theatre, Acting Schools, Make‐up, Managing Play, Study of one English and one Hindi or regional play.

**Textbooks:**

1. Mozart's Opera‐A Companion*Mary; by Hunter* Yale University Press 2008 Hardback
2. Art History, Volume One (4TH 11); by Marilyn Stokstad
3. Dance History: An Introduction; by Janet Adshead‐Lansdale

**Reference Books:**

1. Dancing: The Pleasure, Power, and Art of Movement; by Gerald Jonas. Harry N. Abrams in association with Thirteen/WNET 1992
2. International Encyclopedia of Dance; edited by Selma Jeanne Cohen and the Dance Perspectives Foundation. Oxford University Press 1998
3. History of Dance: An Interactive Arts Approach; by Gayle Kassing
4. Egyptian Art (80); by Cyril Aldred
5. Minoan and Mycenaean Art (REV 97); by Reynold Higgins
6. American Art : History and Culture (REV 03); by Wayne Craven
7. 19th‐Century Art ‐Revised and Updated (REV 05); by Robert Rosenblum and H.W. Janson
8. Creative Impulse : An Introduction to the Arts‐With CD (7TH 05); by Dennis J. Sporre

**Course:** **Basics of Photography**

**Objectives:**

* To learn the basics of art of Photography.
* To understand the basic intricacies involved in taking a photograph.
* To understand what make a good picture.
* To develop basic photographic sense and knowledge.

**Unit I –** Development of Photography over the years: Brief History of Photography, early photography methods, switch from film to digital, difference between film and digital photography, formats of images in digital.

**Unit II –** Cameras & Techniques: Types of camera, film cameras V/S digital cameras, lenses and their importance, Story Design and Development, Laws of Composition, Gesault Law and Visual Perception, Semiotic photography.

**Unit III –** Lighting ‐ Theory & practice: Sources of Lighting, 2 point lighting, 3 point lighting, creating contrast, outdoor natural lighting, related accessories for lighting .

**Unit IV –** Post production of Photos, Digital Image Editing – Photoshop: Processing of Raw images, Introduction to Adobe Photoshop and image ready software, how to enhance the photo digitally

**Textbooks:**

1. The Art of Photography; by Bruce Barnbaum
2. Creative Nature & Outdoor Photography; Brenda Tharp
3. Chasing the Light by Ibarionex Perello

**Reference Books:**

1. The Camera by Larry Hills
2. The Creative Black Book
3. The Print by Ansel Adams, Robert Baker
4. 500 poses for Photographing Women by Michelle Perkins
5. Creative Landscapes: Digital Photography Tips & Techniques byAuthor: Davis, Harold

**Course:** **Introduction to Cinema & Film Appreciation**

**Objectives:**

* To learn the history of cinema.
* To understand the basics of various movements in cinema.
* To learn about world cinema and their prominent masters.
* To understand the studio system.
* To Learn Indian cinema in association with world cinema.

**Unit I – Understanding Cinema**: Genres of Films, Cultural significance in relation to Film, world cinema and world view, Film Screening.

**Unit II –Understanding story telling techniques of Cinema Masters:** Important elements of storytelling of cinema masters, how the plot has been developed, how the characterization has been done, the ups and downs.

**Unit III –World Cinema**‐Study of Iconic Film Directors and their styles Study of Satyajit Ray, V Shantaram, Ingmar Bergman, George Lucas, Fredrico Fellini, Steven Spielberg, Majid Majidi, Akira Kurosava, etc.

**Unit IV –**Introduction to various theories of Films & Important Movements: Apparatus theory, Auteur theory, Feminist film theory, Formalist film theory, Realism Movement, Neo Realism movement

**Textbooks:**

1. Film as Film: Understanding And Judging Movies by Victor F. Perkins
2. Understanding the Film: An Introduction to Film Appreciation, Student Edition by Jan Bone, Ron Johnson
3. Theory of Film: The Redemption of Physical Reality; By Siegfried Kracauer

**Reference Books:**

1. Screen Education: From Film Appreciation to Media Studies; By Terry Bolas
2. Asian Film Journeys: Selection from Cinemaya By Rashmi Doraiswamy, Latika Padgaonkar
3. How Movies Work By Bruce F. Kawin
4. Film Study: An Analytical Bibliography, Volume 1 By Frank Manchel
5. The World Viewed: Reflections on the Ontology of Film By Stanley Cavell
6. A Short History of Film By Wheeler W. Dixon, Gwendolyn Audrey Foste

**Course:** **Basics of Practical Film Making**

**Objectives:**

* To understand the basics of the production pipeline of film making process.
* To introduce the process of guerilla film making & documentary film making.
* To understand the basic workflow in documentary film making process.
* To gain exposure on various rudimentary cameras and basic software’s used for production of documentary film making

The students will undergo the process of Guerilla & Documentary Film making. The students will be exposed to rudimentary cameras & software and will work on projects ranging from 10‐15mins. The students will be exposed to the entire process of film making and the production workflow in Documentary production.

**Semester II**

**Course: English II (Assam Downtown University Syllabus)**

**Course:** **Writing for Visual Media**

**Objectives:**

* To understand the basic structure of screenplay.
* To introduce to the basic skills for screen writing.
* To understand the intricacies of screen writing.
* To learn the build characters and write meaning full dialogues.

**Unit I –** Preparing to Think Visually: Diving In to the Screenwriter’s Mind, Approaching Screenwriting as a Craft, Breaking down the Elements of a Story, Unpacking Your Idea.

**Unit II –** Structure of Story & Screenplay: Plot PartI: Beginnings, Plot Part II: Middles, Plot Part III: Endings

**Unit III –** Dynamics of Characterization: Character Building, Constructing Dynamic Dialogues, Non – traditional Film

**Unit IV –** Finalizing the Script: Maintaining an Audience’s Trust, Turning Your Story into a Script, Take Two: Rewriting Your Script, Adaptation and Collaboration: Two Alternate Ways to Work

**Textbooks:**

1. How not to write a screenplay: 101 common mistakes most screenwriters make by Denny Martin Flinn
2. Screen Adaptation: A Scriptwriting Handbook by Kenneth Portnoy
3. Screenplay: The Foundations Of Screenwriting By Syd Field

**Reference Books:**

1. The Screenwriter's Bible By David Trottier
2. The Bare Bones Book of Screenwriting: The Definitive Beginner's Guide to ... By J. T.Clark
3. Screenwriting for a Global Market: Selling Your Scripts from Hollywood to ... By Andrew Horton
4. Screenwriting For Dummies By Laura Schellhardt
5. Screenwriting: The Sequence Approach By Paul Joseph Gulino
6. The Tools of Screenwriting By David Howard, Edward Mabley
7. 7. The Art of Screenwriting: An A to Z Guide to Writing a Successful Screenplay By William Packard
8. Writing the Character‐Centered Screenplay By Andrew Horton

**Course:** **Concept of Story Boarding**

**Objectives:**

* To understand the need for storyboarding.
* To learn the fundamentals of shoot taking and division.
* To understand various storyboarding techniques.
* To understand the importance of perspective and lighting while storyboarding

**Unit I –** **Intro to Storyboarding/Visual Story telling & Storyboards**: Origins of Story boards and aspect ratio.

**Unit II –** **Fundamentals of Shots**: Terminology of Shoots, Camera Framing, Camera Angles and Movements

**Unit III –** **Storyboarding Techniques**: ∙ Concept‐ what the story is about, Drawing the components of the storyboard ∙ Indicating motion in the storyboard, increased reality‐ perspective and lighting.

**Unit IV –** **Composition, Perspective & Lighting**: Compositional Elements, line‐shape‐contrast, creating meaning within image, Creation of depth through lens choice and linear, atmospheric and size perspective, High‐ Key Lighting, Low key Lighting, 3 point Lighting, Tonal quality of lighting.

**Unit V –** **Continuity**: Basic Rules of continuity, 180 – Degree rule, screen direction, Cutaways & Cut‐ins

**Unit VI –** **Story Boards for Animations & Special Effects Films:** Structure of animation films, Special effects breakdown, creating the environment

**Unit VII –** **Story Boarding for Commercials and New Media:** Structure of commercials, elements of brand building to be implemented, special colour scheme for brands and products

**Text Books:**

1. Exploring Storyboarding By Wendy Tumminello
2. The Art of the Storyboard: Storyboarding for Film, TV, and Animation By John Hart
3. Directing the Story By Francis Glebas

**Reference Books:**

1. Beginning Illustration And Storyboarding For Games By Les Pardew
2. Storyboards: Motion In Art By Mark Simon
3. From Word to Image: Storyboarding and the Filmmaking Process By Marcie Begleiter
4. Prepare to board! By Nancy Beiman
5. Storyboarding 101: A Crash Course in Professional Storyboarding By James O. Fraioli
6. Writing with pictures: how to write and illustrate children's books By Uri Shulevitz

**Course:** **Production Design**

**Objectives:**

* To give an insight of the production process and its flow across various departments.
* To facilitate free flow and open communication across departments.
* To Design and manage studio.
* To increase efficiency and control work volume.

**Unit I –** Pre**,** Production and Post production process - Requirements for organized production process – Requirements for creative – intelligent man power – Stages of production process

**Unit II -** Media – TV Standards – Digital movies- File Formats – Dedicated Machines – Workstations – Computer Hardware and software – Recording devices

**Unit III –** File compression – Codecs – File management – Image quality

**Unit IV** – Requirement for a Production Pipeline – The process in the pipeline

**Unit V –** Studio Design – Management – Infrastructure – Tools – Hardware - software

**Course:** **Basics of Cinematography – I**

**Objectives:**

* To understand the importance of cinematography in film making.
* To enhance the basic knowledge about lighting and its use
* To understand various equipments required for various form of lighting
* To understand the basics of various camera, lenses and digital cinematography

**Unit I – Power of a Picture:** Power of a still picture, shooting a good Still picture, Composition-Framing. Understanding & Use of Color. Capturing the Drama, Black and White Photography.

**Unit II – Light:** Role of light. Lighting techniques. Concept of lighting various planes. Understanding various types: Tungsten lamps, Cool Lights, HMI, Cyclorama/background lights, Soft Box lights. Use of cutter stand, black cloth and Camera filters ,barn doors use of reflectors, Three point lighting ,Ratio lighting: 1:2, 1:3, 1:4 .Creating various Background patterns and types. Lighting – Situations, Studio lighting for three cameras set up: Talk Show, Game Show. Available day light situations, shooting for Documentary style, face lighting. Key, fill, back light, Depth of field Exercise, High key lighting, Low key lighting;

**Unit III – Lenses:** Type of Lenses, Power of Lenses. Understanding the shot requirement and usage of a lens, Idea of perspective: Depth of Field, Depth of focus, Critical understanding of Fixed Lens vs. Zoom Lens. Focus pulling 18% grey card, Metering, Color temperature meter.

**Unit IV – Camera Movements:** Basic grammar of shots, Primary Camera Movement: Pan, Tilt, Zoom, Character Movement, Usage and need of Track and trolly, Crane, jimy gip, Poll Cam, Managing Movements, Single Camera Setup, Multi camera setup, Continuity Exercise, Do’s and Don’ts of camera movements, Aesthetics and Psychological Impact of Moving images, Various parts of Motion picture cameras, Moving Image-Motion Picture, Impact of Collective moving images, various parts of Motion picture cameras, Moving Image-Motion Picture, Impact of collective moving Images, Motion Picture Dynamics.

**Unit V – Understanding digital video recording**: Principle of video recording , Digital Recording Formats, Editing and compression ,Digital sampling and storage ,Technical formats of video‐ PAL, NTSC , “Time Code” in Video Recording , Film Stock and Processing

**Textbooks:**

1. Camera Terms and Concepts by David Elkins
2. The Camera Assistant by Doug Hart
3. Motion Picture Camera and Lighting Equipment by David Samuelson

**Reference Books:**

1. Motion Picture Camera Techniques by David Samuelson
2. The 16mm Camera Book by Douglas Underdahl
3. The Hands On Manual for Cinematographers by David Samuelson
4. The Professional Lighting Handbook by Verne Carlson
5. The Filmmakers Pocket Reference by Blain Brown
6. American Cinematographer ASC Manual
7. The Zone System for Photographers by Carson Graves
8. Cinematography: Screencraft by Peter Ettedgui
9. Contemporary Cinematographers‐On Their Art by Pauline Rodgers
10. Operating Cinematography for Film and Video by William Hines
11. Cinematography‐A Guide for Filmmakers and Film Teachers by Kris Malkeiwicz
12. Film Lighting: Talks with Hollywood's Cinematographers and Gaffers by Kris Malkiewicz
13. The Five C's of Cinematography: Motion Picture Filming Techniques by Joseph V. Mascelli
14. The Art of the Cinematographer: A Survey and Interviews with Five Masters by Leonard Maltin
15. Anton Wilson's Cinema Workshop by Anton Wilson
16. Image Control‐Motion Picture and Video Camera Filters and Lab Techniques by Gerald Hirschfeld
17. Lighting for Film and Electronic Cinematography by John David Viera and Dave Viera
18. Painting with Light by John Alton
19. Picture Composition for Film and Television by Peter Ward
20. Matters of Light and Depth‐Creating Memorable Images for Video, Film and Stills Through Lighting by Ross Lowell
21. Lighting Technology by Fitt and Thornley Set Lighting Technician's Handbook by Harry C. Box
22. Digital Cinematography by Ben De Leeuw
23. If It's Purple, Someone's Gonna Die: The Power Of Color In Visual Storytelling By Patti Bellantoni
24. High Definition Cinematography By Paul Wheeler

**Course**: **Basics of Documentary Film Making**

**Objectives:**

* Learn the basics of visual non-fiction storytelling.
* Train in the underlying skills necessary for documentary production: producing, research, story development, interviewing, writing, cinematography, sound recording and editing.
* Learn the fundamentals of digital video shooting, sound recording and editing.
* Study the history and stylistic range of the documentary genre with a focus on film language, techniques, aesthetics, structure and other elements of cinematic storytelling.

The students will undergo the process of Guerilla & Documentary Film making. The students will be exposed to rudimentary cameras & software and will work on projects ranging from 10‐15mins. The students will be exposed to the entire process of film making and the production workflow in Documentary production.

**Semester III**

**Course:** **3D Lab I**

**Objectives:**

* To provide a detailed introduction to Autodesk Maya Software and helps the student understand the concepts of observation, timing, and motion in the real art of animation and helps in creating strong and believable animation pieces.
* The students will also understand the importance and application of Basic Rigging.
* This course also emphasizes artistic and aesthetic creativity, intending to push the boundaries of the imagination and to familiarize students with acting, developing different kind of personality of characters and to explore character rigging for animation, expressions and particle manipulation.
* The subject ensures that the students will be familiarized with the Maya interface and tools.

**Unit I. Interface and Concept of 3D modeling.**

Being familiar with Maya viewport, user interfaces, status line, shelf, layers, channel box, etc; Understanding the 3 Dimensions, Isometric & Orthographic projection, 3D space, difference between 2D & 3D and xyz coordinates.

**Unit II. Introduction to modeling tools**

Introducing tool box, basic primitives, Mesh, edit mesh, outliner, pivot point etc; Establishing different type of geometries, nature of difference meshes, and advantage and disadvantage of these geometries.

**Unit III. Concepts of UV unwrapping**

Understanding the concept of UVs, UV texture space and how to map them to a surface, and subsequently lay them out accurately is essential for producing textures on polygonal and subdivision surfaces when working in Maya.

**Unit IV. Working with UV tools & techniques**

Understanding the UV Texture editor and technique of how to cut, merge, relax, unfold, and layout the UVs. Experimentexerciseon unwrapping techniques using a simple model.Explaining UV resolution settings, and how to capture a UV snapshot from maya UV, texture editor, and getting in to paint software.

**Unit V. Animation**

Applying the principles of animation using standard cycles -Timing the animation, Adding weight. Mastering the use of Graph editor and Dope sheet, Morph or Animate - Universal Expressions, Other Expressions, Constraining and parenting for animation. Object Character interaction. Character - Character Interaction. Telling a story – Mime. Attitude/Personality – Human Figure Walk cycles. Adding personality and appeal. Acting out a scene/referencing. Thumb nailing. Staging a shot/scene/sequence. Animation Blocking

**Unit VI. Rigging**

Deformers – Nonlinear, Bend, Flare, Sine, Squash, Twist and Wave, Concept of Animating the Envelope, Lattice, Cluster, Sculpt, Jiggle, Wire, Wrap, Edit membership (Including, Excluding, Pruning members) Painting memberships/Weights, Cluster Curve, Deformers – Blend Shape, Creating the Shapes. Rigging Basics - Bones and Joints Skin, Binding Kinematics (IK & FK), Requirements for a clean Model, Clean UVs.

**Unit VII. Skinning**

Binding - Smooth Binding. Concept of a single cluster. Max Influence & Drop-off rate. Rigid Binding Concept of a Multiple cluster, Practice of Rigid and Smooth Binding, Editing the Smooth Skin, Adding influence objects, Painting of skin weights, Editing Skin weights, Mirror Skin Weights Copy skin weights Resetting, Skin weights, Pruning small weights, Normalize Weights, Export / import skin weight maps, Editing Rigid Skin, Creating and Editing Flexors, Lattice, Sculpt, joint Cluster, Painting Cluster weights, Rigid Binding Practice. Rigging the controls - IK and FK, Joints and hierarchies Concept of Skeleton, Connect Joint, Remove, joint, Insert joint, Re-root joint Mirror, Joint, Set preferred angle, Assume preferred angle

**Learning Lab:**

1. Model minimum of 30 scene elements props with textures.
2. Model and texture an cartoon character and environment with detail
3. Rig a cartoon vehicle for animation
4. Rig a vehicle for animation
5. Path animation- Creating a Path Animation -The Attach To Path Options Window
6. Posing - Normal and Extreme poses - Old people, Martial artist, Dancer, Skater

**Reference Books:**

# Understanding 3D Animation Using Maya - John Edgar Park

1. Basics Animation: Digital Animation - Andrew Chong
2. The Animator's Survival Kit--Revised Edition: A Manual of Methods, Principles and Formulas for Classical, Computer, Games, Stop Motion and Interne - Richard Williams
   1. I Publisher: Faber Faber I

**Course:** **Importance of Sound & Sound Special Effects**

**Objectives:**

* To learn about the basic of sound
* To understand the nature of sound and recording devices
* To learn the basics of sync sound, mixing console, analog v/s digital workflow
* To understand the need for sound and importance of sound in film
* To learn to record a song

**Unit I – Basics of Sound:** Nature of acoustical waves; concepts of amplitude and frequency ‐ wavelength and harmonics. Psycho‐acoustics: Nature of hearing and perception of sound, including concepts of pitch, loudness, and timbre; the precedence effect; localization in rooms; equal loudness contours; and other mysteries of hearing. Principles of Stereophony

**Unit II – Sound for Film and Video:** The sound track – its importance in an AV medium, Different elements of a sound track, Explanation of how sound is put to the film

**Unit III – Sync Sound:** The size of the role sound should play in your film will vary depending on your professor's requests, but when it comes to the technical side of things, you are at least required to know how to achieve synchronized sound and picture with film.

* **Interconnectivity of Analog & Digital Equipment:** Basic analog connectors, cabling, patch – bay, interconnectivity between various recording studio equipment. Various Digital interconnects and their sockets on the digital equipment.
* **Microphones Types:** Dynamic, Condenser, Ribbon, Polar Pattern, Sensitivity. Microphone designs for special applications
* **Acoustics I (Fundamentals):** The behavior of sound in outdoors and in closed spaces; Absorption, reflection, diffraction, refraction, reverberation.

**Unit IV – Mixing Console Basics**

The signal flow and various auxiliary systems.

**Digital Audio:** Analog to Digital to Analog conversion. Sampling Frequency, Bit Rates. Problems in digital audio. Different digital media, Standard digital recording & mastering formats. Audio file formats, storage mediums – optical, magnetic, Jitter etc.

**Computers in Audio:** Different platforms – different operating systems, Configuration of a PC for sound recording. Mother Boards, Processor, Sound Card, Graphic card, Monitors **Recorders:** Analog, Digital, Tape Based & Tapeless. Digital Audio Workstations (DAW’s)

**Unit V – Film Showcase:** Case studies of famous Indian as well as foreign films

**Unit VI – Microphone Techniques:** Placement, Applications, Proximity effects etc. microphones and placement techniques for stereo recording.

**Monitoring Systems:** Active & Passive types, Domestic and professional listening environment, Stereo and surround monitoring.

**Unit VII – The Production Process of a Song:** Music Basics. – Types of Music, Concepts of Melody, Harmony, Rhythm & counter melody etc. Format of a song. Preproduction, Tracking, Overdubbing, Editing, Mixing and Mastering.

**Processors:** Theory of Tonal, Dynamic & Spatial processors. Equalizers – types and their application, Compressors & Limiters ‐ theory and application, Effects processors ‐ Reverberation and Delay devices and their plug in counterparts.

**Unit VIII – Sound for film:** Location sound , Radio mics ‐ uses and potential difficulties. Boom operation for sync sound, Hands‐on training in location sound recording for video.

**Nuendo** **Basic:** Basic principles, understanding the process from initial set up to completion of a project. To set up for a vocal/instruments dub. Hands‐on training ‐ You will share a Nuendo workstation during the class.

**Principles of** **Mixing:** The basic techniques of mixing and the fundamental approach. The Building Blocks of Mixing Setting the sound stage, and the sonic implications of panning and of placing instruments at varying distances from the listener; Consideration of different approaches to getting desired results from EQ; A comprehensive review of the uses of dynamic processor; on Individual channels and Mix master. Finishing a mix with automation.

"Mixing in the box." And “Mixing through the board.” **Production of the Sound Track for the student project film:**

Discussing sound design strategy with the director of the film at pre production stage. Attending film sync shoots. Video File formats, Acquiring picture for post production from edit suite. Dubbing the dialogues wherever necessary, Selecting SFX and BG music from the library, recording Foley and music as per the demand of the script. Mixing the final track. Export it to the editor, supervise the final assembly of the film.

**Textbooks:**

1. Pro Tools 9: Music Production, Recording, Editing and Mixing By Mike Collins
2. Pro Tools All‐in‐One Desk Reference For Dummies By Jeff Strong
3. Sound for Film and Television By Tomlinson Holman

**Reference Books:**

1. Sound For Digital Video By Tomlinson Holman
2. Producing for TV And Video: A Real‐world Approach By Cathrine Kellison
3. Sound for picture: an inside look at audio production for film and television By Jeff Forlenza, Terri Stone
4. Audio in Media By Stanley R. Alten
5. Master Handbook of Acoustics ByF.Alton Everest
6. Modern Recording Techniques By David Miles Huber
7. Mastering Audio By Bob Katz
8. Mixing Audio By Roey Izhaki
9. Practical Recording Techniques By Jenny Bartlett
10. Critical Listening Skills for Audio Professionals By F.Alton Everest
11. The Audible Past By Jonathan Sterne

**Course:** **Editing Concepts**

**Objectives:**

* To understand the concept of storytelling through editing.
* To learn about the pioneers of film editing.
* Understand different editing techniques and styles.
* Learn the workflow to effectively edit film.
* Understand digital film editing concepts and techniques.

**Unit 1: History of Film Editing**

History of film cameras, Editing machines [Moviola], Advancements of technology in film camera, Digital Film revolution.

**Unit 2: Editing Cut Types**

Continuity Editing, Montage Sequence, Kuleshov Effect, Discontinuity Editing, Cut Techniques, Transition Techniques, Editing for the Genre, Music Video Editing, Video Art, Pacing and Timing.

**Unit 3: Editing Tools**

Introduction Short history of Video Editing Technology ,Slice and Splice, Electronic Editing, Digital Editing, Time code Editing, Computerized video editing, Small Format Editing, Nonlinear and Digital Effect Editing, Basis of Digital editing process, Time codes ,SMPTE, Edit Decision List[EDL].

**Unit 4: Digital Film Editing**

Introduction to software and workflow, Film Broadcast Formats, Film Frame size and aspect ratios, Setup, Interface, Capturing media from external media, Organizing your media, Monitors, Timelines, Editing.

**Unit 5: Effects and Exporting**

Adding Effects, Title Designer, Time remapping, Mattes, Audio sync, Exporting, File formats and video compressions.

**Research Assignments:**

1. Research of Editing Technologies
2. Research on Alfred Hitchcock and other similar directors.
3. Research on Indian prominent regional directors and editors Ex:  Satyajit Ray, Mani-    Ratnam.

**Assessment:** Each of the topics shown above will be evaluated internally through Continuous Internal Assignments.

**Text Book:**

1. Film Editing: Great Cuts Every Filmmaker and Movie Lover Must Know  By GaelChandler
2. The Technique of Film Editing, Focal Press , Compiled by Karel Reisz, Gavin Millar
3. The Technique of Film and Video Editing: History, Theory, and Practice By Ken Dancyger

**Reference Text:**

1. The Five C's of Cinematography: Motion Picture Filming Techniques Author Mascelli Joseph.
2. Film Directing: Shot by Shot: Visualizing from Concept to Screen, Author: Steven D Katz.

**Course: 3D Dynamics**

**Objectives:**

* The student will be trained in the following.
* Understand and formulate the dynamic simulations to be created.
* To create simple dynamic simulations of object collisions and destructions.
* To create particle simulations for simulating liquids and gas.
* Understand and formulate the dynamic simulations to be created.
* To create simple dynamic simulations of object collisions and destructions.
* To create particle simulations for simulating liquids and gas.
* To understand and implement scripting for creating dynamic simulations.

**Unit I: Applied Physics**

Introduction to Applied Physics and Quantam mechanics, Kinetic Motion, Energy Conversion, Quantum Physics

**Unit II: Dynamic Bodies**

Introduction to special effects –– Rigid bodies – Active and passive rigid bodies -Physics based procedural animation using rigid bodies Collisions – Normals – Fields and its attributes – Simulation of fields

**Unit III: Particle System**

Particles – Emitters – Emitter types and attributes - Deflectors and its attributes Simulating particle effects, Particle effects and collisions, Collision events, connecting camera with particles.

**Unit IV: Soft Bodies and Goals**

Goals – Soft Bodies – Animating soft bodies - Springs– Simulating special effects – vortex - gravity – lighting – rain

**Unit V: Effects**

Destruction of objects experiments, nature elements simulation using particles [Water, smoke, fire etc] Rendering simulations, Optimizing simulations, Simulation for Video and motion graphics

**Learning Lab:**

1. Create dynamic simulations of objects colliding with each other.
2. Create dynamic simulations of exploding objects in scene.
3. Create particle simulation to simulate different liquid properties.
4. Create dynamic and particle simulations to simulate nature elements like rain, vortex, fire etc
5. Create dynamic simulations of object bouncing and contracting through force.
6. Create dynamic simulations of moving nature elements [Fire, smoke etc]
7. Create dynamic foliages and elements for nature scene[ Grass, Trees, Water Streams etc]

**Reference Books:**

* + Maya Studio Projects: Dynamics - Todd Palamar

### Modeling the Environment: Techniques and Tools for the 3D Illustration of Dynamic Landscapes - Bradley Cantrell and Natalie Yates (Mar 27, 2012)

**Course: Basics of  Cinematography – II**

**Objectives:**

* To understand the basic structure of film and digital camera
* To enhance the basic knowledge about lighting and its use
* To understand various equipments required for various form of mood lighting
* To understand basics of various digital cameras, lenses and digital cinematography
* To learn the basics of special effects cinematography
* To understand the needs of co‐creators

**Unit I – Structure of Film and Digital Camera:** Understanding the internal structure of camera , perforation loop , pressure plate ,Pull down claw ,Magazine: Types of magazine, Threading of film ,Intermittent Movement ,Analysis of Claw motion ,Registration pin, Sprocket wheel , Frames per sec, Camera Motors, Slow motion and Fast motion , Reverse Movement , Lens Mount Flange Depth, Magazine Cover/rain cover, Digital Process of Image capturing, Latitude of film Camera format, Latitude of digital format, Shooting Format‐16‐mm/35‐ mm/70‐mm/super.16/I‐max/3‐D, Convenience of Digital format, The Future of Film Formats ;

**Unit II – Special Effects and Cinematography:** Chrome key Concept, Preparation for chrome key, Compositing a digital Picture, Digital matte painting;

**Unit III – Mood Lighting & Colour Lighting Theory & Practice:** Red, Blue, Green, Purple & Orange lights and Treatments for Various Scenes, Colour and Cultural;

**Unit IV – Image formation (Understanding requirements of a director):** Understanding a Screenplay writing , Writing for visuals‐ STORY BOARDING , Capturing the drama on the camera, How to create packets of emotional experience‐Scene, Creation of Drama‐ Ingredients of a Drama;

**Unit V – Understanding the needs of Co‐ creators (Director, Editor, Sound Recordist...)** working in team, Team Building, Conflict formation, Conflict Resolution

**Textbooks:**

1. Camera Terms and Concepts by David Elkins
2. The Camera Assistant by Doug Hart
3. Motion Picture Camera and Lighting Equipment by David Samuelson

**Reference Books**

1. Motion Picture Camera Techniques by David Samuelson
2. The 16mm Camera Book by Douglas Underdahl
3. The Hands On Manual for Cinematographers by David Samuelson
4. The Professional Lighting Handbook by Verne Carlson
5. The Filmmakers Pocket Reference by Blain Brown
6. American Cinematographer ASC Manual
7. The Zone System for Photographers by Carson Graves
8. Cinematography: Screencraft by Peter Ettedgui
9. Contemporary Cinematographers‐On Their Art by Pauline Rodgers
10. Operating Cinematography for Film and Video by William Hines
11. Cinematography‐A Guide for Filmmakers and Film Teachers by Kris Malkeiwicz
12. Film Lighting: Talks with Hollywood's Cinematographers and Gaffers by Kris Malkiewicz
13. The Five C's of Cinematography: Motion Picture Filming Techniques by Joseph V. Mascelli
14. The Art of the Cinematographer: A Survey and Interviews with Five Masters by Leonard Maltin
15. Anton Wilson's Cinema Workshop by Anton Wilson
16. Image Control‐Motion Picture and Video Camera Filters and Lab Techniques by Gerald Hirschfeld
17. Lighting for Film and Electronic Cinematography by John David Viera and Dave Viera
18. Painting with Light by John Alton
19. Picture Composition for Film and Television by Peter Ward
20. Matters of Light and Depth‐Creating Memorable Images for Video, Film and Stills Through Lighting by Ross Lowell
21. Lighting Technology by Fitt and Thornley Set Lighting Technician's Handbook by Harry C. Box
22. Digital Cinematography by Ben De Leeuw
23. If It's Purple, Someone's Gonna Die: The Power Of Color In Visual Storytelling By Patti Bellantoni
24. High Definition Cinematography By Paul Wheeler

**Course:** **Intermediate Practical Film Making**

**Objectives:**

* To understand the production pipeline of film making process for multiple locations in short films
* To introduce the process of 2 Character multiple location ‐ Fiction Short film making and In‐depth Multiple Characters Single Location Short Film
* To understand the entire workflow in 2 Character multiple location ‐ Fiction Short film making and In‐depth Multiple Characters Single Location Short Film making process
* To gain exposure on various cameras and software used for production of 2 Character multiple location ‐ Fiction Short film making and In‐depth Multiple Characters Single Location Short Film

The students will undergo the process of 2 Character multiple location Fiction Short film making and In‐depth Multiple Characters Single Location Short Film. The students will be exposed to Semi professional camera cameras & software and will work on projects ranging from 10‐15mins. The students will be exposed to the entire process of film making and the production workflow in Short Film production.

**Semester IV**

**Course: Introduction to Direction for films & Television**

**Objectives:**

* To understand the need for direction in television and films.
* To understand the role played by a director.
* To understand the Qualities required to be a director.
* To learn how to manage creativity and creative team
* To learn about drama and continuity for films
* To learn the details involve in the production of a feature films

**Unit I – Stills to motion picture, A Perspective on :**Impact of a still picture, Analyzing a picture, Critical Ingredients‐ Leonardo Da Vinci, Composition‐Framing, Function and proper use of lenses, Understanding & Use of color, Aesthetics of Painting and Spatial Arts , Moving Image‐Motion Picture, Impact of collective moving Images, Motion Picture Dynamics, Primary Movement‐Secondary Movements, Managing Movements , Tonal Value‐Depth of Field, Aesthetics and Psychological Impact of Moving Images

**Unit II – Sound & Music, A Perspective on:**Association of sound, Listening to Sound, Contribution and impact of sound, Understanding rhythm, melody, drama, Knowing various instruments, Impact of Sound‐Moods, Role of notes and beats, Tonal Quality, Pitch‐Volume‐Perspective, The concept of Music, Glimpses of World Music, Voice culture‐ for speech, Acoustics, Harmony‐Symphony, Rhythm‐various Types of Rhythm‐Indian and Western Concepts‐Permutations & Combinations of Notes & Rhythm, The formation of Music‐Glimpses of World Music‐Combo of Music & Effects‐Background score

**Unit III – Lighting, A Perspective on:**What makes a good picture parts played by composition, light, contrast and drama, Light‐ contrast‐Volume‐Foreground‐Midground‐Background‐Propenquity‐Distance‐Colour‐Angle, Dynamism involved in motion/action‐Setting dynamism in action‐Creating action

**Unit IV – Art of Film Making, A Perspective on:**Understanding the Importance and power of audiovisual communication, Picture Compositions, Qualities of motion picture: Sense of Tension and Surprise, Intensity of Drama, Facility to travel with viewers from one location to another; How to store a still and a movie, Importance of listing, makeup, properties, set contract, Genres of films – Action, Horror, Romantic, Social, Sci‐Fi, Futuristic, War, The film pipe line ‐Creative Process: Concept‐ Research‐ ideation‐ Structuring a Story‐Story Boarding‐ Characters‐screen play‐ Dialogues‐ Casting‐Shoot‐Edit‐Re‐ Recording‐ Final Print/DVD. Understanding the needs of cinematographer/Sound designer/editor/client servicing executive, The film pipe line‐Production Process, Formation of Team‐Location Survey‐Auditions‐Planning the shoot‐Production Management Hiring of facilities‐Cost Control‐Managing crew & artists

**Unit V ‐ “Director” ‐ Conductor of an Audio Visual orchestra*:*** What it means to be a Director , Managing creativity of colleagues and managing a creative team, Understanding of roles & responsibilities of the crew, Understanding the Emotional Aspect & Technological Aspects of‐ Actors, Cinematographer, Editor, Music Director, Sound Engineer, Makeup Man, How to bring the effects of music & picture together

**Unit VI – Hands on tools for a Director, A Perspective On *:*** How to be creative, what does creativity mean, The language of cinema, The art of episodes, History of Indian & World Cinema, Ad film Making, Documentaries

**Unit VII – ARTISTIC IDENTITY AND DRAMA:** The World of the Film Director, Identifying Your Themes

**Unit VIII – SCREENCRAFT:** A Director’s Screen Grammar, Seeing with a Moviemaker’s Eye, Shooting Projects

**Unit IX – THE STORY AND ITS DEVELOPMENT:** Recognizing the Superior Screenplay –How to create drama, Analyzing a Screenplay, Director’s Development Strategies, Alternative Story Sources, Setting Creative Limitations

**Unit X – AESTHETICS AND AUTHORSHIP:** Point of View, Subtext, Genre, and Archetypes, Time, Structure, and Plot, Space, Stylized Environments, and Performances, Form and Style

**Unit XI – PRODUCTION:** Developing a Crew, Mise‐en‐ Scéne, Producing a Shooting Script, Before the Camera Rolls, Roll Camera, Location Sound, Continuity, Directing the Actors, Directing the Crew, Monitoring Progress

**Unit XII – ORGANIZING ACTION IN AN ACTION SCENE:** Staging and Camera for Over EasyAction Scene, Development of Screenplay, Director’s Preparation for Directing an Action Scene, Over EasyAction Scene/Staging and Camera Angles for ‐ Storyboard Artist

**Unit XIII – ORGANIZING ACTION IN A NARRATIVE SCENE:** Staging and Camera for Narrative Scene, Choosing a Location, Staging, Camera Style

**Unit XIV ‐ Styles and Dramatic Structures:** Style, Narrative, Dramatic, and Poetic Visual Styles, the Variety of Dramatic Structures,

**Textbooks:**

1. Film Directing Cinematic Motion: A Workshop for Staging Scenes By Steven Douglas Katz
2. Film Directing Fundamentals: See Your Film Before Shooting By Nicholas T. Proferes
3. Problems Of Film Direction By Sergei Eisenstein

**Reference Books:**

1. Directing: Film Techniques and Aesthetics By Michael Rabiger
2. On directing film By David Mamet
3. Directing Actors: Creating Memorable Performances for Film and Television By Judith Weston
4. Art Direction for Film and Video By Robert L. Olson
5. The film director's team By Alain Silver, Elizabeth Ward
6. Notes of a film director By Sergei Eisenstein
7. Producing and Directing the Short Film and Video By Peter W. Rea, David K. Irving
8. Fundamentals of Film Directing By David K. Irving
9. Writing, Directing, and Producing Documentary Films and Videos By Alan Rosenthal
10. Breaking into Film by Kenna McHugh
11. Before You Shoot : A Guide to Low Budget Film and Video Production by Helen Garvey

**Course:** **3D Lab II**

**Objective:**

This course is extension of 3D Lab I and dives into artistic and aesthetic creativity, intending to push the boundaries of the imagination and to familiarize students with acting, developing different kind of personality of the characters and to explore character rigging for animation, expressions and particle manipulation. The subject ensures that the students will be familiarized with the Maya interface and tools

**Course Outline:**

**Unit I. Working with Polygon, Nurbs and Sub division modeling tools & techniques**

Understanding nature of polygons, learning different polygon mesh editing tools, components, converting from Polygon to nurbs and sub-divisions, normals etc;Understanding nature of Nurbs surface, curves, components, learning nurbs mesh, editing tools, creating mesh through the curves, converting from nurbs to polygon and sub-division etc; Understanding nature of Sub-division mesh, components, learning different Sub-division mesh editing tools, converting from Sub-division to Nurbs and Polygons etc;

**Unit II. Working with unwrapping complex model**

Finding how to unwrap a complex and multiple models and utilizing the UV texture space efficiently, understanding 0 to +1 texture coordinates, Understanding nature of different materials and achieving different types of texture surfaces such as wood, glass, etc; Understanding how to use a procedural map by using in built resources in maya and create a bitmap by using images, Learning how to assign maps such as diffuse, bump, specular to an object

**Unit III. Object Animation**

Motion and Idea based animation, Object – Character Interaction. Character – Character. Interaction – Simple to complex, Advanced mechanics of motion, Character using whip, axe, sword, hammer etc. Pushing, pulling, lifting weights etc, Climbing a cliff, rope, wall etc.

**Unit IV. Rigging**

IK handle tool, IK Solvers, RP, SC, IK Spline, IK controls IK handle End effectors Using locators, Orientation of joints, Orientation script, Joint limits & damping, Stickiness, Switching between IK/FK, Adding the controls and attributes, Grouping and Parenting, Rigging a arm and hand, Simple rig, Advanced rig, Constraints, Point, Aim, Orient, Scale, Parent, Geometry, Normal, Tangent, Pole vector, Remove target, Set rest position, Modifying axis

**Course:** **Digital Compositing I**

**Objectives:**

The students will receive information that will enable them to:

* Familiarize the tools and techniques to create standard VFX shots
* Learn Problem solving techniques to rectify the errors during compositing.
* Create content for broadcast, feature film and web animation.

**Unit I - Introduction to Digital Compositing**

History of Compositing, Terminologies, Physical Compositing, Multiple exposure, Background Projection, Matting, Digital Compositing, Node based and Layer Based Compositing

**Unit II**

Visual information and the camera, The Camera and Parameters, Resolution Limits, Focus, Depth of field, Motion blurs Lens correction

**Unit III**

Digital Image Generation, Pixels, Components and Channels, Bit Depth, Floating point and High Dynamic Range Imagery, HSV Color, YUV color, Digital Image file formats, Channels, Compression

**Unit IV**

Color Manipulation, Levels, Variations, Multiply, Add, Gamma Correction, Exposure Correction, Invert, Contrast, HSV manipulations

**Unit V** - **Basic Compositing**

Layer and Node based compositing, Blending layers, Matte Image, Masking, Morphing - Chroma Keying, Garbage Mattes, Edge Mattes, Luminance Keying, Chrominance Keying, Difference Matting, Plug-ins and tools for keying.

**Unit VI**

Tracking and Stabilization, Tracking an element, 2D tracking, Perspective tracking, Stabilizing footage, Limitations of tracking and stabilizing tools, Tools for advanced tracking. Digital Imagery, Color Correction.

**Unit VII - Advanced Compositing**

Creating elements, Lighting in compositing tool, Matching live and virtual cameras. 3D Compositing, **Vanishing point conversion**, creating 3D compositing using 2D images, Working with camera and lighting, effects

**Unit VIII**

Working with Multipass Rendering, Alpha and Luma mattes, Z depth maps, Blending passes and effects . Animation, 2D and 3D transformation, Temporal and spartial interpolation, speed graph, optimizing key frames, expressions for animation, Time Remapping

**Unit XI**

**Theory and Practice of Video Art -**  History of Video Art, Contemporary video style, culture and emotion reference - Video synthesizer, realtime video art, tools and techniques, applications - music visualization and media art, automation to music, applications and tools - Video art as art form, Interactive film, display and projection, case studies

**Learning Lab:**

1. Create 2.5D Animation of an exterior and interior scene.
2. Animate a slideshow using images imported into compositing.
3. Track and composite chroma footage to a background, color correct the scene for film.
4. Animate and composite 3D rendered passes with 2D footages.

**Text Books:**

* The Art and Science of Digital Compositing, Second Edition: Techniques for Visual Effects, Animation and Motion Graphics - Ron Brinkmann I Publisher : Morgan Kaufmann; 2 edition (June 4, 2008) I
* Adobe After Effects CS6 Classroom in a Book - Adobe Creative Team I Publisher : Adobe Press, June 25, 2012 I

**Reference Books:**

* Compositing Digital Images - T. Porter and T. Duff I Proceedings of SIGGRAPH '84, 18 (1984) I
* The Art and Science of Digital Compositing - Ron Brinkmann
* Wright'sCompositing Visual Effects: Essentials for the Aspiring Artist [Paperback]2007) - Paperback (2007) - S.Wright
* Compositing Visual Effects – Essentials for aspiring artists - Steve Wright

**Course:** **Matte Painting**

**Objectives:**

To impart Knowledge and Technical skills in creating BG. Matte Paintings **for** Animation/ and live action films

**Unit I**

Introduction – History of Matte Painting, Matte painting in early cinema- front, rear & latent image projections, Digital Matte Painting- Paint v/s pixel - Analyzing work

**Unit II**

Setting Digital tools- Photoshop panels-To work with layers**-** Using custom brushes –Working with Image based Brushes

**Unit III**

Composition and concepts- Visual elements –colour – light and textures and Basic Principles- Perspective study, projections in space.

**Unit IV**

Study of dark and light spaces – cast shadows – create seamless effects of realistic / semi realistic,

**Unit V**

Fantasy and symbolic visuals using paintings, photographs

**Learning Lab:**

1. To create Landscapes, cityscapes, Buildings, Interiors and exteriors, Objects, Ancient Architectures, pavilions, parks etc. [ 8hrs]
2. Blending two or more images to create entirely new and imaginative [ 6hrs]
3. Compositions at various eye levels and perspectives moods and sensual emotions in paintings using various colour concepts, depth, illusion of space in paintings[ 8hrs]
4. Matte painting techniques and concepts for 3D scenes [ 8hrs]

# Textbooks:

* + The Invisible Art: The Legends of Movie Matte Painting - Bargain Price, Publisher: Chronicle Books (November 2002).
  + Beginner's Guide to Digital Painting in Photoshop - Nykolai Aleksander , Richard Tilbury, 3DTotal Team, Publisher: 3DTotal Publishing (January 31, 2012)

# Reference Books:

# The Invisible Art: The Legends of Movie Matte Painting - Mark Cotta Vaz (Author), Craig Barron (Author)

# The Digital Matte Painting Handbook - David B. Mattingly

**Course:** **Lighting and Rendering**

**Objectives:**

The Objective of this course is to help students understand the implementation process of lighting in the virtual world with reference to real world

**Unit I:**

**Shaders :** Understanding Shading attributes, 2D & 3D texture types, Adding a light source, Testing the lights

**Unit II:**

**Light Types:** Light types, Attributes of Light Shadows and their functions. Shadow types, Depth mapped shadows, Raytraced shadows.

**Unit III:**

**Art of Lighting:** Understanding the Art of Lighting – 1, 2, 3point lighting. Outdoor lighting, indoor lighting, product lighting. Optical FX.

**Unit IV:**

**Render Settings:** Concepts of Rendering, Render settings, Rendering optimization, Level of Details [LOD], Ray tracing.

**Unit V:**

**Render Pass and Techniques:**

Types of renderer, Introduction to Indirect lighting techniques. Introduction to render passes.

**Reference Book**

* Digital Lighting & Rendering, Second Edition
* Mental ray for Maya, 3ds Max, and XSI: A 3D Artist's Guide to Rendering

**Course:** **Advertisement Film Making**

**Objectives:**

* To understand the process of an advertisement film making
* To learn the essence of creating action demanding stories required in ad‐ film making
* To understand the various elements of advertising like cop writing, design etc.
* To understand the art & science of ad‐film making

**Unit I – The film pipe line an overview‐Creative Process:** Concept‐ Research‐ ideation |Structuring a Story‐Story Boarding‐Characters‐screen play‐ Dialogues‐ Casting , Shoot‐Edit‐Re‐ Recording‐ Final Print/DVD , Understanding the needs of cinematographer/ Sound designer/ editor/ client servicing executive , Contribution by Lighting‐ Lenses‐Vfx‐RR‐Compositing;

**Unit II – The film pipe line an overview‐Production Process:** Formation of Team‐ Location Survey, Auditions‐Planning the shoot‐Production Management, Hiring of facilities‐Cost Control‐ Managing crew & artists;

**Unit III – Art of Film Making:** Importance and power of Audio visual communication, Strength of a still picture‐Requisites of good still‐How to shoot a good still, Basics of a good still picture‐ Observation by Leonardo Da Vinci, Appreciation of Still picture‐B&W‐ Colour Theory, Understanding Audio Visuals psychologically, Understanding the life around us‐ Creation of Drama‐Role of Characters, Creating the final mix‐The final Ambiance‐The crescendo;

**Unit IV – Sound:** Nature & Role of Sound‐Noise, Sound‐Basic Notes‐ Harmony‐Symphony‐Rhythm, various types of Rhythm‐Indian and Western Concepts, Permutations & Combinations of Notes & Rhythm, The formation of Music‐Glimpses of World Music, Combo of Music & Effects‐ Background score;

**Unit V – The Word‐Spoken & Written:** Writing for visuals‐How to use words effectively, Study of some significant literary works, Balance between words and visuals, Power of silence;

**Unit VI – Art & Science of Advertising:** The need for advertising‐Social Scenario, Too many Products chasing divergent Customers, Understanding the customer/consumer behavior, Understanding the client behavior‐ Art of persuasion, Principals of copy writing and Advertising design, Basics of Graphics‐Basics of Marketing and sales, Hierarchy of ad films in marketing collaterals, Creation of collaterals‐ Loud Messages‐Covert Messages, Study of great Global AV campaigns;

**Unit VII – Being an Advertising Film maker:** The advertising mind frame‐Achieving the impossible, Various genres of films like corporate‐viral‐marketing videos, Films in general vs ad film making the key differentiators, Studying proven ad films campaign, Creating 3 ad/social message films‐Production Management of ad/film making, Understanding the specific needs of TV/Film/Web/Mobile audiences, Optimizing resources, Deciding on the right pitch‐ Thinking out of the box. , Intrapersonal communication skills

**Textbooks:**

1. Hey Whipple, Squeeze This by Luke Sullivan
2. Ogilvy On Advertising by David Ogilvy
3. From Those Wonderful Folks Who Gave You Pearl Harbor by Jerry Della Femina

**Reference Books:**

1. Purple Cow: Transform Your Business by Being Remarkable by Seth Godin
2. Truth, Lies & Advertising: The Art of Account Planning by Jon Steel
3. Positioning: The Battle For Your Mind by Al Ries and Jack Trout
4. How to Write an Inspired Creative Brief by Howard Ibach
5. A Technique for Producing Ideas by James Webb Young
6. Lateral Thinking: Creativity Step by Step by Edward de Bono
7. Caffeine for the Creative Mind by Stefan Mumaw and Wendy Lee Oldfield
8. Zag – Marty Neumeier
9. ReWork – Jason Fried and David H. Hansson
10. My Life in Advertising and Scientific Advertising – Claude Hopkins
11. The Tipping Point – Malcolm Gladwell
12. The Brand Gap
13. Engage: The Complete Guide for Brands and Businesses to Succeed – Brian Solis

**Semester V**

**Course:** **Media Laws – An Overview**

**Objectives:**

* To understand the various laws pertaining to media
* To understand the need and importance of Copyright
* To learn about intellectual property rights
* To understand about media business ethics and issues pertaining to it

**Unit I – Indian Contract Act, 1872:** Essentials of valid contract discharge of contract, remedies for breach of contract. Contracts of Indemnity, Guarantee, Bailment, Pledge and Agency.

**Unit II – The Negotiable Instruments Act 1881:** Essentials of a Negotiable instrument, Kinds of Negotiable Instrument Holder and Holder in Due Course, Negotiation by endorsements, crossing of a cheque and Dishonor of a cheque.

**Unit III – Media Law, Copyright and Intellectual Property:** IPR & copyright laws, Copyright Agreements: Short‐Term vs. Long‐Term Agreements, Media Law and Infringements: Case Studies, Menace of piracy and remedies to counter piracy, Statutory and non‐statutory bodies formed to fight piracy

**Unit IV – Role and importance of Business Ethics and Values in Business ‐** Definition of Business, Ethics Impact on Business Policy and Business Strategy ‐ Role of CEO ‐ Impact on the Business Culture.

**Unit V – Types of Ethical issues ‐** Bribes ‐ Coercion ‐ Deception ‐ Theft ‐ Unfair Discrimination.

**Unit VI – Vendors, Government, & Social Audit. CSR‐** Definition and Importance, examples of various initiatives taken by various business groups like TATAs, Infosys, Birla and others, **Difference between Cause Related Marketing (CRM) and CSR Case Studies:** Reliance WLL license, 2G Scam, Satyam Scam and PWC’s role in the scam!!! **. Role of bodies like Competition Commission of India, SEC, SEBI, TRAI, etc in curbing unethical practices**

**Text Books:**

1. Maheshwari, S.N. and S.K. Maheshwari; A Manual of Business Law, 2nd
2. Edition, Himalaya Publishing House, 2004.
3. Kuchhal M.C.,”Modern Indian Company Law”, 2004, Shree Mahavir Book Depot.
4. Kuchhal, M. C.; Business Law, Vikas Publishing House, New Delhi, 2004.

**Reference Books:**

1. Kapoor, N. D.; Elements of Mercanlite Law, Sultan Chand & Sons, NewDelhi,2003
2. Memoria & Menoria ‐ Business Policy
3. David J. Fritzsche ‐ Business Ethics: A Global & Management Perspective ‐ Tata McGraw‐Hill
4. Ramaswamy Namakumari ‐ Strategic Planning ‐ Corporate Strategy ‐ MacMillan India Ltd
5. Velasquez ‐ Business Ethics ‐ Prentice ‐ Hall of India
6. Dr.S. Shankaran ‐ Business Ethics & values
7. Gulshan S.S. and Kapoor G.K., “Business Law including CompanyLaw”,2003,New Age International PrivateLimited Publishers.
8. Aggarwal S.K., “Business Law, 2003”,Galgotia publishing Company.
9. Bagrial, Ashok;Company Law, Vikas Publishing House, 2004.4. Kapoor, N. D.;
10. Elements of Company Law, Sultan Chand & Sons, NewDelhi, 2003.5. Dr. Singh, Avtar;
11. Company Law, Eastern Book Co. Lucknow, Bharat LawHouse, Delhi, 2004
12. Peter Madsen & Jay M. Shafritz ‐ Essential of Business Ethics
13. Ken Smith and Phil Johnson ‐ Business Ethics and Business Behavior
14. Pratley ‐ Essence of Business Ethics ‐ Prentice ‐ Hall of India

**Course:** **Overview - Media and New Media Business**

**Objectives:**

* To educate about the basics of Media and entertainment business
* To understand the basics of television business and challenges faced by it
* To understand the basics of radio business and challenges faced by it
* To understand basics of animation and gaming business

**Unit I – Indian Media Industry Overview:** State of the Media: FICCI‐CII report overview. The changing Dynamics of Media

**Unit II – Challenges facing Television and Radio:** The all new web media and associated ramification, Television Distribution: Issues and Challenges, Content Repackaging, Piracy Issues‐In real and web‐virtual domains, Challenges associated with IPTV & DTH

**Unit III – Animation, Gaming and VFX industries growth and opportunities:** Animation Industry Growth and Challenges, VFX for Cinema: Impact of Hollywood, Gaming Industry Challenges and Conflicts; Multiplication of Gaming platforms, Evolution of Gaming technology ‐ from 8 bit to console gaming, Gaming as additional revenue stream for monetizing a franchise. Case Study: Avatar, Kung‐fu Panda, Ratatouille, Wall‐E, etc SPIDERMAN, KRISH, HANUMAN, GHAJINI, And ROADSIDE ROMEO: Case Study

**Unit IV – International Issues Facing the Media Industry : Case Studies:** Piracy Issues and Introduction to IPR, Adapting international content to Indian television : KBC‐Big Boss‐ Case Study, Pricing Challenges, Unconventional Media Opportunities in India, Definitions and terms in unconventional media, Pod Casting, i‐media and digital media

**Course:** **Basics of Marketing & Publicity Design**

**Objectives:**

* To introduce the basics of marketing and publicity design
* To educate about the importance of marketing in today’s world
* To help understand the various tools needed for marketing and publicity design
* To learn about the marketing plan and market research
* To help get insight into consumer consumption behavior

**Unit I – Introduction to Marketing:** 1. Importance of marketing, definition of marketing, scope of marketing, functions of marketing, marketing and its relation to other business functions, difference between sales and marketing. 2. Key marketing terms and concepts‐ need, want, demand, exchange, marketing myopia and marketing orientations, distinction between selling and marketing. 3. Marketing Mix, 4Ps, 7Ps, 4Cs.

**Unit II – Marketing Research:** Definition, Marketing Research Process, Types of Research: Primary, Secondary, Qualitative, Quantitative

**Unit III – Consumer Behavior:** 1. Introduction and importance, model of consumer behavior, characteristics affecting consumer behavior.

**Unit IV – Segmentation, Targeting & Positioning:** 1.Segmentation ‐ Bases and process of segmentation, requirements for effective segmentation, niche marketing, segmenting consumer markets, segmenting business markets. 2. Targeting‐ Evaluating market segments, selecting target market segments. 3. Positioning‐ Positioning maps, differentiation and positioning strategy, communicating and delivering the chosen position

**Unit V – Introduction to the concept of IMC:** Introduction & Familiarization, Definition of Promotion & Promotion Mix, Tools of Promotion Mix, IMC Planning Process, Creative Strategy, Media Strategy

**Unit VI – Packaging for film & television:** The art of Promo, Advertisement & In serial promotions, Art of Writing Copy, Designing for various mediums, Public Relations, Planning, organizing and managing events. Managing the internet and social Media. Vendor selection and management, Media Planning & Buying

**Reference books:**

1. Competing For The Future By C.K. Prahalad & Gary Hamel.
2. Kotler on Marketing: How to Create, Win, and Dominate Markets By Philip Kotler.
3. How to Win Friends and Influence People By Dale Carnigie.
4. Market Research: A Guide to Planning, Methodology and Evaluation By Paul Hague.
5. Art of War By Sun Tzu.
6. Strategic Management By Gregory Dess, Lumpkin & Taylor.
7. How Winners Sell: 21 Proven Strategies to Outsell Your Competition and Win the Big Sale ByDave Stein.
8. Beyond Bullet Points: Using Microsoft® Office PowerPoint® 2007 to Create Presentations That Inform,Motivate, and Inspire By Cliff Atkinson.
9. Selling the Invisible: A Field Guide to Modern Marketing By Harry Beckwith.
10. Marketing Services: Competing Through Quality By Parasuraman & Leonard L.Berry.
11. Marketing Management (12th Edition) (Marketing Management) By Philip Kotler.
12. Consumer Behavior: Building Marketing Strategy, 9/e, (with DDB Needham Data Disk) By Hawkins, Best, & Coney.
13. Crossing the Chasm: Marketing and Selling High‐Tech Products to Mainstream Customers ByGeoffrey A.Moore.
14. Mind and Heart of the Negotiator, The (3rd Edition) By Leigh Thompson.
15. Radically Transparent By Andy Beal & Judy Strauss.

**Course:** **Digital Compositing II**

**Objectives:**

The students will receive information that will enable them to:

* Familiarize the Concepts and techniques used in compositing
* To familiarize in Advanced In-Depth Compositing

**Unit I- Compositing Technique**

Pass Management, Bit Depth Allocation, Finding The Best Depth Channels, Color Channels for the Project

**Unit II**

The LUT use and Specifications, Finding the Black's and White's, Node reusing to Maintain Color Correction, Use of Plugin's in 3D Channels

**Unit III**

Advanced In-Depth Compositing, Concepts and Techniques to Compositing Foliage, Learn to Composite Hair and Fur, Creating and Merging Horizon Lines, Using Vector Blur For Quicker Results

**Unit IV**

Creating Macro's and Dummies, 3D Layers / Nodes in Brief, 3D Camera Projection and Tracking, 3D Channels and Depth Creation, RGB Mattes and Rotoscopy Solutions.

**Learning Lab:**

1. Compositing a Cityscape with Live Footage

2. Compositing an Explosion Accident

3. Compositing an Live scene with Multiple CG Characters

4. Compositing a natural Disaster scene

a. Tornado

b. Sunami

c. Earthqwake

d. Ice Berg's Break

e. Valcano

5. Building and Ground Distruction

**Textbooks:**

* The Art and Science of Digital Compositing, Second Edition: Techniques for Visual Effects, Animation and Motion Graphics - Ron Brinkmann, Publisher : Morgan Kaufmann; 2 edition (June 4, 2008)
* Adobe After Effects CS6 Classroom in a Book - Adobe Creative Team, Publisher : Adobe Press, June 25, 2012

**Reference Books:**

* Compositing Digital Images, T. Porter and T. Duff, Proceedings of SIGGRAPH '84, 18 (1984)
* The Art and Science of Digital Compositing - Ron Brinkmann
* Wright'sCompositing Visual Effects: Essentials for the Aspiring Artist [Paperback]2007) - Paperback (2007) - S.Wright
* Compositing Visual Effects – Essentials for aspiring artists - Steve Wright

**Course: Rotoscopy and Keying**

**Objectives**: To impart technical skills in Rotoscopy and painting and application knowledge for different requirement

**Unit I:**

History of Rotoscoping, Latest tools for Roto, Terminologies, Shortcuts to work faster.

**Unit II:**

Understanding the frame, shot length, planning the matte usage, Multiple shapes, Repeating shapes, Keying animation, Motion paths. Working with Blur, Motion blur, Checking the mattes, jitter.

**Unit III:**

Layer and Node based compositing, Blending layers, Matte Image, Masking, Morphing - Chroma Keying, Garbage Mattes, Edge Mattes, Luminance Keying, Chrominance Keying, Difference Matting, Plug-ins and tools for keying.

**Unit IV:**

Creating splines, Transitioning between shapes, Working with pivot points, Key frame placement and types.Rotoscoping Human, Isolating extremities, Joints, Hands, Overlap, fixed shapes, faces and heads, hair Rotoscoping movement, fast and slow movement, tracking to optimize roto, Clothing, Shape breakdown, consistent point placement, secondary motion

**Unit V:**

Concepts and tools for painting, Cleaning plates, Wire and Rig Removal, Pixel restoration.

**Learning Lab:**

1. Rotoscope a footage containing minimum character movements and no camera movement.
2. Track and Rotoscope footage with camera movement and fast movement of the characters.
3. Remove wire, foilages and destructions from the footage using rotoscope

**Textbooks:**

# Rotoscoping: Techniques and Tools for the Aspiring Artist by Benjamin Bratt, Publisher: Focal Press, February 23, 2011

# The Digital Matte Painting Handbook by David B. Mattingly Wiky Publishing 2011

**Reference Books:**

# The Art and Technique of Matchmoving: Solutions for the VFX Artist by Erica Hornung Elsever Inc Publishers

* 1. The Art and Technique of Matchmoving: Solutions for the VFX Artist by Erica Hornung

**Course: Advanced Practical Film Making**

**Objectives:**

* To introduce the process of Music Video and 20 mins Television series making
* To understand the production pipeline of Music Video and 20 mins Television series making process
* To understand the entire workflow in Music Video and 20 mins Television series making process
* To gain exposure on various cameras and software used for production of Music Video and 20 mins Television series making

The students will undergo the process of Music Video and 20 mins Television series. The students will be exposed to professional HD cameras & software and will work on projects ranging from 5Mins‐20mins. The students will be exposed to the entire process of film making and the production workflow in music Video & television Series production.

**Semester VI**

**Final Project**

**Objective**

This Module is to make a visual FX short film by the students as Team or by an Individual. The content will be executed by their creative ability and process providing with the prior storyboard approvals in the earlier semester. Students can come up with a brand new ideas with respect to more scope for VFX that should include elements like FX-Dynamics, Live footage Tracking, Cleaning, including CG elements with the cleaned plates and compositing which eventually will be the industry practice output.

The Core practice of this Module will have unique ideas said that the content should not be re-created or it should not be the inspiration of any works which is published earlier in this medium. Provided sufficient amount of days to complete this Module as an output of VFX movie, students are asked to deliver the movie with enormous creative idea and new industry technology.

* To impart knowledge in recording and documenting the preproduction, Production and Post production of the Project
* To impart skills in the presentation of the concept of the project, Lay out for the visuals and various stages of the project in professional manner

Step 1: Think and Ink

Idea has to build and to be moulded for VFX movie. The idea can be vague or gag not necessarily a concept, but new and the idea should include all the key skills that you learnt in the two semesters. The Idea should be visual treat rather than a story or script treat since it’s a VFX movie. The created idea will be approved by the concerned Instructor according to the Achievable complexity with the provided resources.

Step 2: Idea to Script

Put your ideas into papers as script and create a story board for the same. The Story board should have a brief scene description which says the details about the Location, Camera and Lens, Cast and Crew, Light setup and digitization. So this is the place where you need to create the live and CG elements placement and the back and forth process of inserting and removing CG elements which will out the sufficient amount of details which will enhance the reality of visual treat.

The background score is added in the story board to give the final look of the movie. Make sure the story reveals the actual strength in the storyboarding part as a whole. Every aspect of sound should be there in the storyboard...for ex, the water flow, wind flow, object falling down, fight scene. Etc.

Step 3: StoryBoard to Previz

Used the cleaned plates for Rotoart and use the same footage for overall CG elements Previz to ensure that we follow the same time or more accurate time for the final output. Use dummies (low poly models) as models for the Previz which will replace the actual detailed(high poly models) CG elements. Though you should maintain the texture treatment just to freeze the look and feel of the shot.

Step 4 : Shooting on Location

Be on the spot to make the shot details work close to the CG plan that you planned in storyboard. Take the Camera angle measurements as well as the lens and camera color profile. If you are the director for the movie discuss with yourself that the time and schedule for the camera is more suitable to shoot and a visual mockup of such shots in the location itself will reduce your work.

Step 5: Production and Footage Processing

The Production processes are very parallel to footage matchup, so clean the plates and start comparing and placing the CG elements in the live footage and start rolling the production schedules.

Step 6: Compositing

This is the very important stage in VFX movie. By Playing a very Vitol role decides the look and feel of the your short film. Which involves many references like Color script, look and feel references and photography references to enhance the details in the film. This render output should match with the step 3 storyboard outputs which will bind the sound to the film.

Step 7: Final Cut

This is the editing stage. Remove unwanted shots and trim cut the shots for the better and more interesting results will make the audience more committed to the Film.