



**Bangalore University**

**ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ**

NAAC ACCREDITED WITH 'A' GRADE

## **REGULATIONS AND SYLLABUS**

**For**

**M.Sc. Graphics and Animation**

**(Choice Based Credit System)**

**To be introduced from the academic year 2019-20**

## **Preamble**

Graphics and Animation industry in India is expected to grow at a pace faster than IT industry. The career option is growing day by day. The formal post graduate education will fetch wider opportunities for the students who may be placed at different organization. The growing entertainment industry is opening doors for students having Graphics and Animation post graduate degree. The graphics and animation industry has moved on from being just an outsourcing facility to a creator of indigenous intellectual property as well. The growing number of animation studios and graphic designing platforms are employing many professionally trained people. Thus the job opportunities of the degree bearer of M.Sc. Graphics and animation are increasing.

The present course will provide professional training to the students and equip students to maintain competitive edge and deliver the requirements of film, gaming and other platforms. The Global graphics and animation market is expanding and entertainment industry is continued to grow. After completion of the Post Graduate Degree Program students can get job opportunities/placements in the various segments in industry like Media and Entertainment, Animation Studios, Post Production Houses (PP), Broadcast Houses, Game Studios ( Game Art ), Visual Effects (VFX) for Films and Television, Advertisement Industry, Design Visualization, Architectural /Interior/Landscape Designing, Product Designing/Mechanical Visualization/ Industrial designing, Medical Visualization, Set Designing/Exhibition Designing, Apparel/ Fashion Designing, E-learning/CBT Designing, Web Designing, Graphic Design, 3D Modeller, Animator, Material & Lighting Artist, Action Scripting Programmer, Virtual Reality Artist, Rigging Artist, Compositor, Editor and VFX Artist.

Considering the career opportunities and growth in the field of graphics and animation, the Department of Electronic Media, Bangalore University proposes to start a Post-graduation program of two years M.Sc. Graphics and Animation under Faculty of Science Bangalore University.

### **The course objectives are**

1. To train students in computer graphics, storyboarding, computer languages, technology and nature of the moving image.
2. To train students to acquire skills in generating marketable animated pictures.
3. To train students to be Web Designers, Game Designers and 3D Animators, and work in films, television, and other forms of the interactive media industry.

### **M.Sc. Graphics and Animation**

The program shall be called M.Sc. in Graphics & Animation. It is a two-year program consisting of four semesters coming under the Faculty of Science. The course shall be governed by the following regulations:

## 1. ELIGIBILITY, MODE OF SELECTION

A candidate who has passed any Bachelor degree of three years duration, from a recognized University with overall 50% marks (45% in case of SC, ST and Category-I candidates) is eligible for admission to the first semester of the program.

1.1. Eligibility is as per the norms of admission to PG courses of Bangalore University.

1.2. Admission to M.Sc. Graphics and Animation Course shall be made in order of merit of the candidates subject to the statutory provision of the reservation based on the average percentage of marks obtained by the candidates in all the examination of three years bachelors' degree course including languages.

1.3. Any candidate found to have given false information at the time of admission regarding eligibility shall forfeit the admission even after getting selected and admitted to the course.

## 2. INTAKE

2.1. There shall be a total intake of **20 candidates, out of which 50% of the seats are reserved for students with bachelor degree in Graphics and animation and related major subjects**. Maximum of 20 seats including all reservation categories.

## 3. COURSE OF STUDY

3.1. The course of study for the M.Sc. in Graphics and Animation shall extend over a period of two years consisting of four semesters. Each semester shall be of sixteen weeks duration. The academic calendar shall be as notified by the university from time to time.

3.2. A candidate can take a maximum of four years for completion as per double the duration norms of Bangalore University.

3.3. The medium of instruction shall be **English**.

3.4. Course shall be of **100 credits**.

3.5. Candidate shall do internship in the organization of eminence in 4th semester by taking project. The organization shall submit the attendance to the department time to time and inform about the student's performance. The project will be evaluated at the semester end by the external and internal evaluation. The internship duration is not less than 12 weeks.

## 4. ATTENDANCE, PROGRESS AND CONDUCT

4.1. Each semester shall be taken as a unit for the purpose of calculating attendance.

4.2. The students shall attend practical and theory classes as prescribed by the University during each semester.

4.3. A student shall be considered to have completed a semester if the student has attended not less than **75%** of number of working periods of the course during the said semester. If the

attendance in any paper is less than 75% the candidate is detained to take examination in that paper and the credits earned in that paper becomes zero.

4.4. The student who fails to complete the course in the manner stated in 4.3 shall not be permitted to appear for the University examinations. Such a candidate shall enrol himself/herself in the coming two years. However the admission is subject to the availability of the seats.

4.5. If the conduct/behaviour of the student is not found to be satisfactory, action will be initiated as per the University regulations.

## **5. SCHEME OF EXAMINATION**

5.1 There shall be a University examination at the end of each semester. Examination and evaluation will be conducted as per university regulations time to time.

5.2 The duration and maximum marks and minimum marks for pass in each of the theory and practical shall be as per university regulation.

5.3 There shall be a university examination at the time of each academic semester with a maximum of 70 marks in case of theory and 35 marks in case of practical paper.

5.4 Internal assessment marks; each theory paper shall have 30 marks and each practical paper shall have 15 marks for internal assessment. The award of internal assessment is based on two class test, attendance and assignments in the academic semesters.

5.5 The internal assessment marks once awarded for any paper shall be retained and considered as final even if a student reappears for that paper in subsequent attempts.

5.6 Students who undergo internship shall submit the dairy duly signed by the concerned organization head where internship is done having the details of everyday activities of internship. The internal marks may be awarded based on the submission of internship dairy by the board department.

## **6. DECLARATION OF RESULTS AND CLASSIFICATION OF SUCESSFUL CANDIDATES**

6.1 The results and grades of the M.Sc. Graphics & Animation shall be declared as per the regulations of the Choice Based Credit System - Postgraduate courses of Bangalore University.

## **7. MINIMUM REQUIREMENTS TO PASS**

7.1 A candidate shall be declared to have passed the PG program if he/she secures at least a CGPA of 4.0 (Course Alpha-Sign Grade P) in the aggregate of both internal assessment and semester end examination marks put together in each unit such as theory papers / practical / project work / dissertation / viva-voce.

No candidate shall be declared to have passed the Semester Examination as the case may be under Part I / Part II / Part III unless he/she obtains not less than 35% marks in written examination / practical examination and 40% marks in the aggregate of written / practical examination and internal assessment put together in each of the subjects and 40% marks (including IA) in Project work & viva wherever prescribed.

The candidates who pass all the semester examinations in first attempts are eligible for ranks provided they secure at least a CGPA of 6.00 (Alpha-Sign Grade B+).

7.2 The results of the candidates who have passed the fourth semester examination but not passed the lower semester examinations shall be declared as NCL (Not Completed Lower semester examinations). Such candidates shall be eligible for the degree only after completion of all the lower semester examinations.

7.3 A candidate who passes the semester examinations in parts is eligible for only Class / CGPA and Alpha-Sign Grade but not for ranking.

7.4 There shall be no minimum in respect of internal assessment.

7.5 A Candidate who fails in any of the unit / project work / Project Report / dissertation / viva-voce shall reappear in that unit / project work / Project Report / dissertation / viva-voce and pass the examination subsequently.

7.6 CARRY OVER PROVISION: Candidates who fail in lower semester examinations may go to the higher semesters and take the examinations.

7.7 REJECTION OF RESULTS:

- i. A candidate who fails in one or more papers of a semester may be permitted to reject the result of the whole examination of that semester. Rejection of result paper wise shall not be permitted. A candidate who rejects the results shall appear for the examination of that semester in the subsequent examination.
- ii. Rejection shall be exercised only once in each semester and the rejection once exercised shall not be revoked.
- iii. Application for rejection along with payment of the prescribed fee shall be submitted to the Registrar (Evaluation) through the department/college together with the original statement of marks within 30 days from the date of publication of the result.
- iv. A candidate who rejects the result is eligible for only class and not for ranking.

Subject	Papers	Instruction hrs/week	Duration of Exam (hrs)	Marks			Credits
				IA	Exam	Total	
<b>a) I/ II Semester of the Postgraduate Program</b>							
Core subject	5T 2P	5X4 2X4	5X3 2X3	5X30 2X15	5X70 2X35	5X100 2X50	5X4 2X2
Soft Core	1T	1X3	1X3	1X30	1X70	1X100	1X2
Total of Credits Per Semester							26
Core subject	4T 3P 1Project	4X4 3X4 1X3	4X3 3X3 Project evaluation	4X30 3X15 -	4X70 3X35 1X50	4X100 3X50 1X50	4X4 3X2 1X2
Soft Core	1T	1X3	1X3	1X30	1X70	1X100	1X2
Total of Credits Per Semester							26
<b>c) III Semester of the Postgraduate Program</b>							
Core subject	4T 2P	4X4 2X4	4X3 2X3	4X30 2X15	4X70 2X35	4X100 2X50	4X4 2X2
Open Elective	1T	1X4	1X4	1X30	1X70	1X100	1X4
Semester Total of Credits							24
<b>d) IV Semester of the Postgraduate Program</b>							
Core Subjects & Electives	2T	2X4	2X3	2X30	2X70	2X100	2X4
	Project Work	16	Project Evaluation	-	1X200	1X200	1X8
	Internship	Full time	Report evaluation	1X50	1X150	1X200	1X8
Semester Total of Credits							24
Program Grand Total Credits							100



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## **M.Sc. Graphics and Animation**

<b>Sl. No</b>	<b>Heading</b>	<b>Particulars</b>
1	Title of the Course	<b>Two years Post graduate programme under choice based credit system M.Sc. Graphics and Animation</b>
2	Eligibility for Admission	<b>Any Graduate</b>
4	No of Years / Semesters	<b>02 Years (4 Semester)</b>
5	Level	<b>Post Graduation</b>
6	Pattern	<b>Semester</b>
7	Medium of Instruction	<b>English</b>
7	statutes	<b>New</b>
8	Implementation	<b>From academic Year 2019-20</b>

## I SEMESTER

Sl. No.	Subject	Paper	Instructional hrs/ week	Duration of exam (hrs)	I.A. Marks	Exam Marks	Total Marks	Credits
1	Principles of Drawing and Anatomy	GA101	4	3	30	70	100	4
2	Introduction to Animation	GA102	4	3	30	70	100	4
3	2 D Animation	GA103	4	3	30	70	100	4
4	Script Writing and Story Board Designing	GA104	4	3	30	70	100	4
5	Art of Film Making	GA105	4	3	30	70	100	4
6	2D Animation (PR)	GA106	4	3	15	35	50	2
7	Graphics (PR)	GA107	4	3	15	35	50	2
8	Magazine and Newspaper Design (Soft Core)	GA108	3	3	30	70	100	2
Total credits								26



## II SEMESTER

[illegible]

### III SEMESTER

[illegible]

## IV SEMESTER

Sl. No.	Subject	Paper	Instructional hrs/ week	Duration of exam (hrs)	I.A. Marks	Exam Marks	Total Marks	Credits
1	Communication Research	GA401	4	3	30	70	100	4
2	<b><u>Elective</u></b> a. Communication Skills b. Presentation Techniques	GA402 a GA402 b	4	3	30	70	100	4
3	Animation Film Project	GA403	8	Project evaluation	-	200	200	8
4	Internship	GA404		Report Evaluation	-	-	200	8
<b>Total credits</b>								<b>24</b>

# **I SEMESTER**

## **GA101 - Principles of Drawing and Anatomy**

**Objective:** To teach students basics of Graphics, Visual Effects and Animation. **52 Hours**

### **Unit-1**

Sketching and Drawing: drawing techniques, Proportions, Line, Pencils: shading, Sketching-Moving Objects, People, Animals, Proportion-portrait drawing, Highlighting, shadows, basic shapes, bones, muscles at rest, translate, maintaining correct volumes. Perspective: Introduction, Perspective in 1, 2, 3 point, Eye levels, Vanishing point, Significance-animation, composition, Humans, animal, blocks, boxes, shapes, Scale diagrams, Different viewpoints, Importance of eye level. **12 Hours**

### **Unit-2**

Color Theory and Composition: Fundamentals colour drawing, colour wheel, Illusion drawings, Communicating-colour, Colour and mood, Colour and painting styles, Colour and compositions, Colour in action, Realism, immersion and believability in colour scheme, Digital colour correction. Studying Human and animal movement: sequential drawings, gesture drawing, Caricaturing: Fundamentals, Exaggeration, Attitude, Silhouettes, Boundary breaking exercises and warm ups, gesture drawing, Line drawing and quick sketches, Drawing from observation, memory and imagination. **12 Hours**

### **Unit -3**

Anatomy: Importance of Anatomy in animation, Basic Forms, Proportion of Human Body, Perspective Drawing, Drawing Planes, Surface of a Male Body, Study of a Man- Hand, Chest, Face, Parts of Head, Symmetry of Head, Angle selection of Head, Feet: Drawing-in proportions, drawing foot, angle selection, sketch full figure of a man. **10 Hours**

### **Unit -4**

Female Anatomy: Proportion of Female Body, Construction, Face study-symmetry, parts, Hands, Drawing Hand-Drawing arms angles, Feet study: construction: feet, legs, balance of the body, Child's figure: Construction of child, line of action, study-chest, face, study of child: Face study, Part's face, Symmetry-proportions, Chubbiness, Feet study, Proportions-Feet, Drawing child-various angles. **10 Hours**

### **Unit-5**

Animal Anatomy: Drawing Animal figure basic forms, angle selection of drawing, drawing animal character, Face study, Leg study, Leg movement, understanding material quality of Tail, creating animal in perspective. **8 Hours**

### **References:**

1. Walt Stanchfield, *Drawn to Life: 20 Golden Years of Disney Master Classes*: Volume 1, Routledge Publication, 2009
2. Walt Stanchfield, *Drawn to Life: 20 Golden Years of Disney Master Classes*: Volume 2, Routledge Publication, 2009
3. Desmond Morris, *Manwatching*, Jonathan Cape Publication, 1977
4. Gordon Wainwright, *Teach Yourself Body Language*, Mc-Graw-Hill Publication, 2003
5. Betty Edwards, *Drawing on the Right Side of the Brain*, Tarcher Publication, 1999
6. Kimon Nicolaides, *The Natural Way to Draw*, Mariner Books, 1990

## **GA102 - Introduction to Animation**

**Objective:** Students will learn the process of creating an animation project.

**52 Hours**

### **Unit-1**

Introduction to animation, Heritage of Animation, Dawn of Digital Animation, Digital effects of 3D Animation, Rotoscope to Motion Capture, Becoming an Animator, Becoming an Actor, Becoming a Storyteller, Becoming a Creative Practitioner, Applications of Animation- Entertainment, Advertisement, Education, Medical Practise and Engineering. 12 Hours

### **Unit-2**

Basic Principles in animation, Squash and stretch, Anticipation, Staging, Straight ahead and pose to pose, Follow through and overlapping action, Slow in and slow out, Arcs, Secondary action, Timing, Exaggeration, Solid drawing, Appeal, Mass and weight, Character acting, Volume, Line of action, Path of action, Walk cycles-animal and human. 12 Hours

### **Unit-3**

Tools of Animation The use of Live Action in Animation Humans and Animals-Quick Studies from real life, Sequential movement drawing, Caricaturing the Action, Thumbnails, Drama and psychological effect, 8 Hours

### **Unit-4**

Motion Studies, Drawing for motion, The Body language, Facial expressions and Lip sync, Introduction to traditional and digital equipment- The animator's drawing tools, The animation table (light box, Field charts, Exercises and warm ups on pegging sheet, Line tests, The exposure sheet ("X" sheet). 10 Hours

### **Unit-5**

3D Animation Pipeline Preproduction- Idea, Story, R&D, Script to screenplay, Storyboards. Production-Layout, 3D Model, Texturing(Surfacing), Rigging/setup, Animation, 3D Visual effects, Lighting and Rendering and Post production – Colour Correction, Audio Video Editing, Final Output. 10 Hours

### **References:**

1. Frank Thomas & Ollie Johnston, *Illusion of Life*, Disney Editions, 1995
2. Richard Williams, *Animators Survival Kit*, Faber & Faber Publication, 2001
3. Harold Whitaker & John Halas, *Timing for Animation*, Focal Press, 2002
4. Chris Patmore, *The Complete Animation Course*, B.E.S.Publishing, 2003
5. Tony White, *The Animator's Workbook*, Watson-Guption Publication, 1988
6. Robert E. Abrams, *Treasure of Disney Animation Art*, Disney Editions, 1992
7. Eric Goldberg, *Character Animation Crash Course*, Silman-James Press, 2018
8. Kit Laybourne, *The Animation Book*, Three Rivers Press, 1998

## GA103 - 2D Animation

**Objective:** Students will learn the basics of 2D animation creation.

**52 Hours**

### Unit-1

Timeline construction and management, Keyframe animation, Motion and shape tweening, Working with symbols, Importing from Illustrator and Photoshop, Basic scripting in Action script 3.0, Delivery and file formats, Flash Video examples.

10 Hours

### Unit-2

Types of graphics, animation types, overview of the animation (flash), 2D animation and its features, Drawing tools, types of panels, transformation, property panel, working with objects, group, bitmap, Controlling Movie Clips with code, Working with Dynamic Text fields and Input Text Fields, Loading external content and other flash movies, Dynamic preloaders, Interactivity with code.

12 Hours

### Unit-3

Text box Font, style, hyperlink, property panel, Working with symbols, Planning the development process, Working with XML and dynamically generated content, Advanced animation and interaction concepts, Advanced sound applications, Integrating video with Flash, Working with Components using Actionscript 3.0.

10 Hours

### Unit-4

Grid and guidelines, Onion-skinning, Difference between 2D and 3D animation, Animation in flash, Tweening and motion along a path, Controlling movie playback, Text and hyperlink, adding sound and movie, File format in flash, test movie, Testing the movies, Shock wave movies Action Script overview, Actions panel, Script window, Action Script editor environment, Syntax, script- button, movie clip, frames, basic programming language and action script.

12 Hours

### Unit-5

Adding interactivity to web page using Action Script-basics of action script overview, Writing and debugging scripts overview About the Actions panel, Script window, Action Script editor environment, Syntax highlighting Interactivity Creating interaction with Action Script overview, listing a SWF file's variables, About events and interaction, SWF file playback, The Output panel.

8 Hours

### References

1. Suzanne Weixel, *Learning Flash 5*, Prentice Hall, 2001
2. Joey Lott, *Learning Action Script 2.0 Flash Mx*, Lynda.com, 2004
3. Crumlish Christian, *Web Design With Html/Flash/Java Script & E-Commerce*, 2015
4. David. W. Mount, *Macromedia Flash Mx 3D Graphics Bible*, 2008.
5. Leigh Ronald.W, *Flash 5 For Dummies*, 2016.
6. Sahni Sartaj, *Flash Mx Actionscript For Designers*, 2014.

## GA104 - Script Writing & Story Board Designing

**Objective:** to train students in the art of scripting and story boarding.

**52 Hours**

### Unit-1

Basics of story: Exploring ideas, Concept, Plot, Structure, Character Theme, Conflicts, Storytelling outline, Building a character, delivering a precise message through the story, Story pacing. Animation story for Children, Adults, Basics of story and Basics of Script writing Action, Scene Headings, Character Name, Screenplay, Titles and End Credits.

12 Hours

### Unit-2

Scriptwriting terminology: Action, Angle, BG close up, Exterior, Fade in fade out, Pan, Parenthetical, POV, Scene Heading, Slug line, SFX, Sotto voce, Track with, Voice over, Character name, Cast List, Dialogue, Script Length, Action Description, Extension, Dual-Column Dialogue, Act numbers, Scene Numbers, short lines, dialogue paragraphs, Character Arc.

12 Hours

### Unit-3

Story boarding: Introduction to storyboards, Steps of creating a storyboard, Beat board, Story boarding overview, Contents, Pose, Scenes, Camera, colour scheme, Sound, Lighting, Special fx, Applications, Focus the story and the timing in several key frames, Animatics-Lica reel.

10 Hours

### Unit-4

Techniques to produce fast script, Advantage of script writing with softwares. Script writing for 2D Films, Animations, writing for new media – internet and mobile media.

8 Hours

### Unit-5

Intellectual property and copyrights Public domain material, Protecting the idea, Proof of ownership, Confidentiality agreement, Piracy, Animation Industry in India, Case Study.

10 Hours

### References:

1. Christy Marx, *Writing for Animation Comics & Games*, Elsevier India Pvt. Ltd, 2007.
2. Stephanie Torta, *Storyboarding: Turning Script to Motion*, Mercury Learning & Information, 2011.
3. Prajapati A K, *Computer Graphics & Animation*, Pragati Prakashan, 2005.
4. Harold Whitaker / John Halas, *Timing for Animation*, Focal Press, 2009.
5. Mark Whitehead, *Animation*, Pocket Essentials, 2004.
6. Chris Neuhahn, *Character Animation and Film Production Projects 3DS Max w/cd*, Wiley India Pvt. Ltd, 2006

## **GA105 - Art of Film Making**

**Objective:** To make the students understand film making process.

**52 Hours**

### **Unit-1**

Basic art of filmmaking, Types of Film Production, Development- Selection of concept, Pre-production- Area of research, Script development -types, Draft preparation. Shot, scene, Story board, Copy right (Law/Ethics), Hiring actors or models, Crew members Role of Director & procedures. Art Director, Cinematographer, Director of Lighting, Floor Manager, Production Manager. Preparing Production board/Management, Planning and Budgeting for Production, Location scouting. Set direction & colour correction, Equipments required and tests, Finalizing props, shooting schedule, Script breakdown.

12 Hours

### **Unit-2**

Digital Video Equipments Introduction to Digital Video Equipments: Digital Video Camera-Types – Format- Major Components - Operation and Functions. Lens – Types – Aperture-Shutter. Focal Length. Depth of Field. Lighting, Digital Camera- Movements-Composition-Shots- Angles. Single & multi-camera operations.

12 Hours

### **Unit-3**

Production, Shooting on location, Shooting script, Visualization, Selection of Dialogue, Rehearsing, Principles of photography, Sound recording. Online, offline, recorded & live programmes.

10 Hours

### **Unit-4**

Post-Production, Video Capturing and Footage review. Final scripting. Video Editing-types, EDL Preparations, Editing Techniques- Continuity- Sequence-Dynamic. Method of Video Effects and Video Transition, Chromo-Keying.

8 Hours

### **Unit-5**

Dubbing, Sync sound, audio mixing, sound effects, Mix and composite, Audio and video Special effect. (Sound, Visual, Graphics and Animation), Titles, Film Screening, FT (Fit for Telecast) certificate, Certificate Approving, Marketing-getting sponsors. Publicity, Film Releasing.

10 Hours

### **Reference**

1. Gerald Millerson, *Television Production*, Focal Press, London, 2016.
2. Gerald Millerson, *The Technique of Television Production*, Focal Press, London, 2001.
3. Paul Wheeler, *Digital Cinematography*, Focal Press, London, 2001.
4. Peter Jarvis, *The Essential of TV Director's Handbook*, Focal Press. London, 1996.
5. John Watkinson, *An Introduction to Digital Video*, Focal Press, London, 1994
6. Thomas D. Burrows, Lynne S. Gross, *Video Production: Disciplines & Techniques*, MC Grawhill Publication, 2005
7. Tom Letourneau, *Lighting Techniques For Video Production*, 1996.
8. Thomas A. Ohanian, *Digital Non-Linear editing*, Focal Press. London, 1998.



## **GA106- 2D Animation (Practical)**

**52 Hours**

**Software's and Tools: Blender 3D Grease Pencil**

Animation Principles: (Classical and Digital)

Anticipation: Pointing out, Bow and Arrow, Ball Bounce, Character Facial Term, Hammer hitting to Nail / Axe hitting to Tree.

Moving Holds: Force transmitted through joint Limbs, Banging on table, Drumming hand

Secondary action: Head turn with blink, Book references

Solid drawing, appeal: Character animation with Solid poses

Staging: Character animation with background

Exaggeration: Sport scene

Walk Cycles Biped: Male side walk, Female sidewalk, Male front walk, Female front walk, Character walk in perspective with appendages

Walk Cycles Quadruped: Four leg walk – Skeleton walk, Deer walk, Dog walk

Run Cycles: Male front run, Female front run, Male side run, Female side run, Character 3<sup>1/4</sup><sup>th</sup> run with appendages

Flight: Flight of Birds – Small Birds, Big Birds, Book exercises.

Jump Cycles: Male front jump, Female front jump, Male side jump, Female side jump, Character 3<sup>1/4</sup><sup>th</sup> jump with appendages

Lip Sync: M-B-P, A, AA, U, O, TH- D, F-V lips. Advance Acting with Dialogue: Simple word lip-sync of male character, Simple word lip-sync of female character, Simple word lip-sync of kid character.

## **GA107 – Graphics (Practical)**

**Software's and Tools:** Adobe Photoshop & Corel Draw

**52 Hours**

### **Pixel Graphics:**

Simple text effects,  
Image restoration,  
Image manipulation in Photoshop,  
Movie poster concept,  
Creating story board,  
Digital scenery creation,  
UI Design,  
Smart objects,  
Actions,  
Batch,  
Creating website layout,  
Day to Night scene conversion,  
Set extension in Photoshop.

### **Vector Graphics:**

Symbols,  
Icons in Corel draw,  
Business Card,  
Logo/Identity design,  
Creating Graphs,  
Brochure design,  
Product packaging design.  
Infographics

## **GA108-Magazine and Newspaper Design (Softcore)**

**Objective:** Students will learn the techniques of newspaper and magazine designing.

**30 Hours**

### **Unit-1**

Design Elements, Design Principles, size of the publication – choice and considerations: Grid, vertical, horizontal, modular, column widths, proportion of space given to headlines compared to length of copy, space given to advertising, relevant use of borders, tints.

**6 Hours**

### **Unit-2**

Layout techniques; showing how design elements combine to create an overall look to the publication (Magazine, newspaper, leaflet, poster, pamphlet etc).

**4 Hours**

### **Unit-3**

House styles, style sheet, Style guide, Styles: Typography, choice of typeface and masthead, choice and use of images and, colour, positioning of articles and images on the page, use of headlines in an appropriate font, point size, number of lines etc, text manipulation, juxtaposition of text/images/advertising.

**8 Hours**

### **Unit-4**

Layouts: Stages of layout, preparation of newspaper and magazine layout, difference between Newspaper & Magazine layouts, Creating layouts using design softwares, creating vector graphics and raster images.

**4 Hours**

### **Unit-5**

Color & Fills, Color Scheme, Color Models, Using Color in document, Using Color in presentations, Using Fills, Texture and patterns, Special Effects, Using Envelops Using extrude, Using blend, Using Lenses, Using perspective, Rotating and skewing objects with transform Rollup, Stretching and mirroring, Printing Document, Save & Close & open file

**8 Hours**

### **Reference**

1. Weinmann, E. & Lourekas, P, *Quark Express 5 for windows*, 2018.
2. Adobe Page Maker 7.0 *Classroom in a book*, BPB Publication, 2002.
3. Altman Rick, *Illustrator 10 Bible*. IDG Books worldwide, 1999.
4. Alur Deepak & Malis Dan, *Mastering Corel Draw 7*, 2005.
5. Fordney Marilyn Takahashi & Deihl Marcy Otis, *Computer Graphics - Principles And Practices*, 2018
6. Krishnan.N. & Saravanan.N, *Introduction To Computer Graphics*, 2018.

## **II SEMESTER**

## **GA201-3D Modelling**

**Objective:** To teach the techniques of modelling and texturing

**52 Hours**

### **Unit-1**

3D Modelling: Introduction to various 3D modelling, working with symmetry, Editing components in orthographic view, editing components in perspective view, Poly editing techniques- Extruding, Bridging, Adding polygon to mesh, Split polygon faces, edge loops, Mirror copying a mesh, Creasing and hardening edges on mesh, Sculpt a polygon mesh Poly Normal, Edge & bevel, Separating & combining geometry, NURBS, sub-D's. 12 Hours

### **Unit-2**

Modelling techniques: Using 2D reference sketches to model, , Image Planes, Sculpting, Retoplogy and poly modelling workflow, Polygon primitives, Modelling in shaded mode, Model symmetry, Drawing a polygon, Quads, Tris and nGons, Low Poly/High Poly modelling, Exporting the models from scene to scene. 10 Hours

### **Unit-3**

Texturing: Introduction to texturing, Unfolding/Unwrapping UV mesh, Smoothing and relaxing a mesh interactively, Fixing problem areas, Applying textures, Introduction to Maya Hypershade, Texturing, Materials, Normal mapping, Baking maps. Traditional sculpture principles of form, material, and site and utilize Developing 3D Sculpture, sculpting technology, uses. Animation- Locomotion, Body mechanic- Weight and balance. 12 Hours

### **Unit-4**

Techniques behind Planning and blocking methods, Understanding Hips, In-depth look of principles of animation, Splining and Polishing methods, Phrasing or bets in shot, Force and forms, Animating Physicality workflow. 8 Hours

### **Unit-5**

Hyper realistic Character Modeling and digital sculpting: Modeling the hyper realistic Human Face-Modeling the hyper realistic Human body -Quadruped Modeling- Adding hyper realistic detail with Digital sculpting tool and Modeling of related Props. Character Texture painting with Photoshop and 3D painting tool- Image based Texturing (Image Projection) and Painting UV seams - Creating Bump, Normal, Displacement and Specular map-Texturing techniques for Characters and Props. Study the principles of Color theory. 10 Hours

### **References:**

1. Adam Watkins, *Introduction to 3d graphics & animation using Maya* w/cd, International Thomson Computer pres, 2007.
2. Chris patmore, *Complete animation course*, Barrons educational series inc, 2003.
3. Adam Watkins, *Maya A Professional Guide*, Published by dreamtech, 2003.
4. Danish Derakhshavi, *Introducing Maya 8 3D for Beginners*, Wiley Publishing Inc. 2006
5. Tom Meade and Shinsaka Anima, *The Complete Reference Maya 6*, Hill Publishing Company Limited, 2004.

## **GA202-Surfacing, Lighting and Rendering**

**Objective:** Students are trained in surfacing, lighting and rendering techniques for animation

**52 Hours**

### **Unit-1**

Introduction to Character setup, Riggers role, Criteria for a good rig, Joints and skeletons, Creating skeleton hierarchy, Constraints, Forward(FK) and Inverse kinematics(IK), FK, IK joint structures, Animation controllers, Blend shapes, Clusters, Biped Rig- Analyzing reference, Anatomy of human body, Bone placements, Setting up Torso, Biped Arms, Fingers, Legs/Foot controls, Skinning, Facial Rig- Anatomy of a face, The Facial Action Coding System(FACS), Mouth shapes, Phonemes, Animation controllers for Face, Character GUI.

12 Hours

### **Unit-2**

Introduction to 3D Muscle system, Components of Muscle, Capsules, Spline based muscle system, Stretch based muscle systems, Muscle Objects and skins, Assigning weights to Muscle skin, Muscle Builder, Muscle Parameters, Custom muscle systems, Wrinkles, fold, jiggle, Slide, Collide, Muscle control.

10 Hours

### **Unit-3**

Surfacing: Lofting, Surface, Extruded Surface, Planar Surface, Beveled Surface, Boundary Surface – Combining Techniques and Surface History – Modeling with Deformers – Editing NURBS Surfaces – Using NURBS Surfacing to Create Polygons – Converting NURBS to Polygons Patch Modeling – Using Artisan to Sculpt NURBS. Modeling with Deformers and Subdivisions Surfaces: The Lattice – Creating a Base Poly Model, Modeling and Animations, Interiors - More complex UV mapping, Programmatic movement.

12 Hours

### **Unit-4**

3D Lighting: Directional lights, Spot lights, Types of lights in 3D space, Light attributes, 3 Point lighting, 2 Point lighting, Shadows, photo real environmental lighting.

8 Hours

### **Unit-5**

Rendering: 3D rendering, advance lighting effects, Shading material for objects: Anisotropic, Blinn, Lambert, Pong, Pong E, Layer Shader, Ocean Shader, Hair tube shader, Ramp shader, Shading Map, Surface shader, Refining shading materials, Mental ray rendering and Toon shade rendering. IPR rendering, Software, Hardware rendering, Batch rendering, Creating various output as per the end user requirements and maintaining the resolution.

10 Hours

### **References:**

1. Matt Lombard, SolidWorks Surfacing and Complex Shape Modeling Bible, Wiley publishers, 2011.
2. Brad Clark, John Hood, Joe Harkins, *Inspired 3D Advanced Rigging and Deformations*, 2013.
3. Von Michael Ford, Alan Lehman, *Inspired 3D Character Setup*, 2002.
4. Chris Maraffi, *Maya Character Creation: Modelling and Animation Controls*, 2003.
5. Tina O'Hailey, *Rig it Right! Maya Animation Rigging Concepts* (Computers and People), 2013.

## **GA203-Fundamentals of 3D Character Animation**

**Objective:** Students are trained in basic techniques and various stages of 3D character animation

**52 Hours**

### **Unit-1**

Biped and Motion Flow (Introduction, Creating and Editing Biped, Motion Panel). Behavior & Body language Analysis & Implementation (Mechanical, Bird, Animal, Human, Environment).

12 Hours

### **Unit-2**

Introduction to Walks with Personality, Locomotion, Body mechanic- Weight and balance, Techniques behind Planning and blocking methods, Understanding Hip.

10 Hours

### **Unit-3**

In-depth look of principles of animation, Splining and Polishing methods, Phrasing or bets in shot, Force and forms, Animating Physicality workflow.

8 Hours

### **Unit-4**

Animation Essentials (Advanced) – Introduction, Import / Export & References, Animation Passes, Sound. Exposure Sheet.

10 Hours

### **Unit-5**

Character Sets and Trax Editor (Introduction, Character sets, Trax Editor, Character Mapping). Behavior & Body language Analysis & Implementation (Mechanical, Bird, Animal, Human, Environment).

12 Hours

### **References:**

1. Adam Watkins, *Introduction to 3d graphics & animation using mayaw/cd*, international thomson computer pres, 2007.
2. Chris Patmore, *Complete animation course*, barrons educational series inc, 2003.
3. Adam Watkins, *Maya A Professional Guide*, dreamtech, 2003.
4. Danish Derakhshavi, *Introducing Maya8 3D for Beginners*, Wiley Publishing Inc, 2006.
5. Tom Meade and Shinsaka Anima, *The Complete Reference Maya 6*, Tata MC.Graw–Hill 2004.
7. Frank Thomas, *Illusion of Life* by 9 old men of Disney, 1995.
8. Autodesk *Getting Start with Maya* URL: docs.autodesk.com/mayaul/2015/enu/gettingstarted, 2015

## **GA203-Advanced Graphic Designing**

**Objective:** Students are facilitated to learn the tools and settings to design graphics **52 Hours**

### **Unit-1**

Understanding paths, views, selection tools, fills and strokes, Setting up preferences and color settings, Creating basic geometric shapes with the Shape tools, Using a grid and smart guides to aid symmetrical drawing, Using the Bezier Pen, Direct Selection tool, and Convert tool efficiently, Applying and editing color gradients to filled regions, Creating and using swatches, tints, gradients, and patterns on filled regions. 12 Hours

### **Unit-2**

Transform tools including scaling, rotating, distorting, shearing, and reflecting, Using the pathfinder panel to make complex shapes, Working with the Blend tool / command and its options, Creating a compound path. 8 Hours

### **Unit-3**

Changing blending modes and opacity, Using and editing an opacity mask, Using layers to keep your art project organized, Creating clipping masks, Tracing a scanned image with Live Trace, Applying warp effects and the envelope feature, Understanding the Appearance panel. 12 Hours

### **Unit-4**

Creating effects and styles, Using multiple strokes and fills, Creating and manipulating type, Creating symbols and using the symbol tools, Understanding and creating the four kinds of custom brushes, Using the mesh tool for complex gradients, Applying 3D effects. 10 Hours

### **Unit-5**

Illustrators tools: special effects, realistic shadows, patterns for fills and borders, Drawing 3D artwork: isometric, dimetric, and trimetric views, Drawing using custom guides for perspective, Creating line effects for maps, Live Trace to Live Paint to Live Color explorations, Creating type effects: masks, applying a paintbrush effect, and circle text, Applying 3D effects to shapes, Using the graph tool to create bar and pie charts. 10 Hours

### **References:**

1. Sandra E Eddy, *Complete Reference Adobe Illustrator 10*, McGraw-Hill/Osborne, 2002.
2. David Karlins, *Illustrator – CS a beginners guide*, Adobe, 2003.
3. Kevin Tallon, *Creative Fashion Design with Illustrator*, Pavilion Books, 2006.
4. Dinesh Maidasani, *Adobe Illustrator CS2*, Fire Wall Media, 2006.
5. Robert W Gill, *Basic Rendering Effective Drawing Effective Drawing for Designers Artists*, Thames and Hudson, 1991.



## **GA204-3D Modelling (Practical)**

**Software and Tools:** Blender 3D or Autodesk Maya

52 Hours

Apple  
Strawberry  
Coca-Cola Can  
Treasure Box  
Human Nose Sculpt  
Human Eyes Sculpt  
Human Mouth Sculpt  
Human Ears Sculpt  
Biological organ planning (Heart)  
Biological organ finishing  
Human Character planning  
Human Character blocking  
Human Body sculpting  
Human character body sculpting  
Human character face sculpting  
Human character polish and finish

## **GA205-Surfacing, Lighting and Rendering (Practical)**

**Software and Tools:** Blender 3D/ Autodesk Maya

52 Hours

Shading networks  
Tire texturing  
Rustic automotive texturing  
Texturing Alley: preparing / collecting texture, texturing using nodes  
Low Poly Game Texturing: Preparing / collecting texture, texturing using nodes, texture using normal mapping  
Human Skin Texturing: preparing / collecting texture, texturing using nodes  
Animal Skin Texturing: preparing / collecting texture, texturing using nodes  
Polish and portfolio presentation

## **GA206-Fundamentals of 3D Character Animation (PR)**

**Software and Tools:** Blender 3D/ Autodesk Maya

52 Hours

Pendulum

Bouncing Ball (Light & Heavy)

Vanilla Walk

Personality Walk (3D space): planning, blocking, max blocking, polish and finish pass

Body Mechanics: planning & layout pass, blocking pass, max blocking pass, polish and finish pass, Polish and portfolio development

## **GA207-Graphics Project**

52 Hours

Each student is required to produce 4 graphic projects during the 2<sup>nd</sup> semester. The student shall do the project under the supervision of a Faculty of the department and submit the project to the department for evaluation.

## **GA208-UI and UX Designing (Softcore)**

**Objective:** Students are trained about user experience based designing and developing different types of web pages

**30 Hours**

### **Unit-1**

User Interaction with the products, applications and services – Cognitive Model/Mental Model, User Experience Design, Core elements of User Experience and its working, UX Design Process and Methodology. UX Design Process: Research, Understanding the User Needs and Goals, Understanding the Business Goals, Deliverables of the Research, Visual Design Principles, Information Design and Data Visualization, Interaction Design, Information Architecture, Wire framing & Story boarding, UI Elements and Widgets, Screen Design and Layouts.

**6 Hours**

### **Unit-2**

UX design prototype and test: Usability Testing, Types of Usability Testing, Usability Testing Process, plan for the Usability Tests, Prototyping Design to Test, Introduction of prototyping tools. Iterate and improve: Understanding the Usability Test findings, Applying the Usability Test feedback in improving the design, Communication with implementation team. Psychology and human factors: Memory, attention, perception, visualization. Design principles: Visibility, Feedback, Mappings, Constraints, Distributed Cognition, Activity Theory, Situated Action.

**6 Hours**

### **Unit-3**

Designing Web pages, Creating websites and pages using Dream Weaver - editing cross-platform and cross-browse pages. Flash to HTML, CSS, Conversion: Flash to HTML Conversion, Understanding basics of HTML to create web pages – Building information Management, Planning and designing web page - HTML programming, Text, Table, Image and audio.

**4 Hours**

### **Unit-4**

Testing a Website, using checklist for site launch applying check target browser feature validate markup feature, transferring site and files to the Internet – Synchronizes the site files compare files for difference, test the website, setting up a dynamic site.

**8 Hours**

### **Unit-5**

Web Apps: Introduction to Web Applications, Understanding Graphical User Interface designing. Mobile Apps: Introduction to Mobile Applications, Designing of apps for Android, IOS, Windows Touch apps, Understanding the limitations of the different devices and their specifics.

**6 Hours**

### **Reference:**

1. Nathan Clark, *Ui/ux Design Basics and Fundamentals*, Amazon Digital Services 2018
2. Jesse James, *The Elements of User Experience: User-Centred Design for the Web*, 2010.
3. Mike Kuniavsky, *Observing the User Experience: A Practitioner's Guide to User Research*, 2012.
4. Bill Buxton, *Sketching User Experiences: Getting the Design Right and the Right Design Book*, 2007.
5. Jeffrey Rubin, *Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests*, 2008.

## **SEMESTER III**

## **GA301-3D Simulation & VFX**

**Objective:** To teach the techniques of simulations in animation projects and VFX **52 Hours**

### **Unit-1**

Dynamics: Introduction to Dynamics and Dyna motive solver, Particles, Emitters, Fields: Air, Drag, Gravity, Newton, Turbulance, Vortex, Volume, Particle collusions, Particle cache, Goals, Soft bodies, Springs, Rigid bodies, Constraints, Effect: Fire, Smoke, Fireworks, Lightening, Shatter, Curve flow, Surface flow, Rendering particles and effects, Maya Paint Effects, Baking simulations, Render types. **12 Hours**

### **Unit-2**

Fluid Effects: Introduction to Fluids, Fluid field interaction, Fluid attributes, , Creating a non-dynamic 3d fluid effects, Creating dynamic 3D effect, Creating fire and smoke using Fluid dynamics, creating a ocean. **8 Hours**

### **Unit-3**

nDynamics: Introduction to nParticles and Nucleus solver, Nucleus node, Nucleus forces, Nucleus plane, Nucleus attributes, nParticles interaction, nConstraints, nCloth: simulations, nCloth dynamics properties, Working with nConstraints, Tearing cloth, Dynamic Property maps, Simulating cloth on moving character, nParticle caching, nConstraints, Creating Smoke simulations in nParticles, Creating liquid simulations in nParticles, Introduction to nHair, Creating Basic hair style, Creating a dynamic curve simulations. **12 Hours**

### **Unit-4**

VFX: Digital video processing and stabilization, Chroma keying, understanding setup and shoot for green screens, Key light, Roto isolate subject for keying, Matte controls, Matte levels, Garbage mask using primate, Spill control, Light wrap, Chroma subsampling. **10 Hours**

### **Unit-5**

2D and 3D Camera tracking, Track Point quality, Rendering point cloud, setting size and axis, 3D object to location in 3D Space, Tracker settings, Mask, DOF, depth generator, Reconcile 3D, Matte painting assets, painting/rendering clouds, color grading, perspective, parallax, 3D projection, fore ground, mid ground, background compositing, adding depth, atmospheric effects(Rain, fog etc...), Grain management. **10 Hours**

### **References:**

1. Loney sl, Elements of statics & dynamics part 2 dynamics, 2005
2. Zerouni, Craig. Houdini On the Spot. Focal Press, 2007
3. Eric Keller, Maya Visual Effects The Innovator's Guide: Autodesk Official Press, 2015
4. Autodesk Getting Started with Maya 2015  
URL: docs.autodesk.com/mayaui/2015/enu/gettingstarted, 2015.
5. Susan Zwerman, Jeffrey A, The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures, 2016.

## **GA302-Compositing and AV Editing**

**Objective:** To equip students with compositing techniques and various editing principles

**52 Hours**

### **Unit-1**

Compositing Techniques: advanced 2D animation compositing and Ink paint techniques. Rotoscopy, Creating color models, Creating color pallets, Understand the dope sheets / X-sheets, Arranging and adjusting the layers X- sheet. Match moving, Advanced panning of camera and background, multiple cameras, over lay and character layers. 12 Hours

### **Unit-2**

Compositing special effects: 3D graphics, special effects in 2D layers, Broadcast animation logos, channel IDs and Montages. Multi-Layer Compositing, Special Effects, Superimposition and Titling. Exporting various file format outputs. Deep Compositing, Deep Image Data, Lighting rendering and breaking our 3d work into deliverables for comp, Compositing CG assets, Colour matching, optical enhancements and integration using CG data from 3d for complex interaction, Creating IBL asset. 12 Hours

### **Unit-3**

Video Editing: Introduction- Editing, Film Editing, Types of editing, Digital Editing Devices, Process of Editing, Control Panel, Audio and Video- Effects, Transitions, Syncing, Image Mask, Creating Titles, Templates, Preparations, Shot list, Organizing Rushes, Video file formats, Fine tuning, Cropping, Correction-Color, Gamma. Types of cuts, Cutting on action, Rythem, Timing, Pacing, Phrasing, Physical, Emotional and Event Rhythm. 10 Hours

### **Unit-4**

Audio Editing: Sound Basics, Characteristics of waves, Hearing, Perception of sound direction. Recording Techniques: Microphone & Speaker Mechanism, Microphone & Placement, Recording, Stereo recording, Setups and Equipment, Computer Based Recording, Analog, Digital and MIDI technology, Synthesizer. 10 Hours

### **Unit-5**

Sound Forge: Introduction to Sound Forge, Software Interface, Settings and Preferences, Recording, Processing and Exercise. Acting concepts: Audience, Character, Scene, Movement. Speech: Camera, Form, Medium. Classroom, acting analysis. 8 Hours

### **References:**

1. Steven E. Browne, *Video Editing- A post production primer*, Focal Press, 2002.
2. Ken Dancyger, *Film and Video Editing*, Focal Press, 2013.
3. Gary Anderson, *Video Editing and Post Production- a Professional guide*, Focal Press, 1997.
4. Thomas A Ohanian, *Digital Nonlinear Editing*, Focal Press, 1998.
5. Arthur Schneider, *Electronic Post production and video tape editing*, Focal Press, 1998.
7. Gerald Millerson, *Techniques of television Production*, Focal Press, 2009.

## **GA303-Advanced 3D Character Animation**

**Objective:** Students will be trained in character rigging; animation work flow and software tool **52 Hours**

### **Unit-1**

Advanced Character Rigging: character rigging techniques in Maya. Modular rig skeletons for flexibility and speed. create and utilize custom tools. create IK FK systems, create non-flipping twist rigs. Create Own Character and Apply Rigging: Rigging in 3D Animation, rigging techniques on characters. **10 Hours**

### **Unit-2**

Advanced Character Animation: Animation Types, Key frame, Animation workflow. Animation Techniques: Non – Linear, Character Animation, Posing, Timing and Refining: Working with Poses. Path Animation: Animate with curve or surface - Edit path, animation parameters, Set Driven Key, Establish Relationships, Character Animation – Skeletons, Clusters, Lattices, Forward and Inverse Kinematics: IKRP Solver, IKSC Solver, IK Spine handle Solver, IK Spring Solver, Human IK Solver. **12 Hours**

### **Unit-3**

Timing 3D Animation: Dope sheet, Rapid and intuitive global editing of key frame timing - Channel Box, Graph Editor, Precise Controlling on animated parameter, Motion Blur - Generalized Constraints, Comprehensive assortment of constraints. The Animation Process: Posing, Timing, Refining. Animate Model: 3D Animation workflow, Animate. **12 Hours**

### **Unit 4:**

Software and Tools - Maya and Motion Builder-Advance Body Mechanics Planning, Layout pass & Blocking pass, Max Blocking pass polish and finish. Pantomime Shot: Planning & Layout pass, Blocking Pass, Max Blocking Pass, Polish and Finish Pass. **10 Hours**

### **Unit-5**

Dialogue Shot: Planning & Layout pass, Blocking pass, Facial animation & Lip sync, Polish and finish pass, Motion Capture data polishing. **8 Hours**

### **References:**

1. Kyle Clark. *Inspired 3D character animation*. Premier Press, 2003
2. Chris Neuhahn, *Character Animation and Film Production Projects using 3ds Max w/cd*, Wiley India Pvt. Ltd, 2006
3. Chris Maraffi, *Maya Character Creation: Modeling and Animation Controls*, 2014.
4. Michel Ford and Chris Maraffi, *Inspired 3D Character Setup*, 2016.
5. Kyle Clark, *Inspired 3D Character Animation*, Premier Press, 2003

## **GA 304-Character TD (Character Setup, Cloths and Hair)**

**Objective:** To teach students about character technical direction and different types of simulation **52 Hours**

### **Unit1:**

Introduction to Character setup, Riggers role, Criteria for a good rig, Joints and skeletons, Creating skeleton hierarchy, Constraints, Forward(FK) and Inverse kinematics(IK), FK, IK joint structures, Animation controllers, Blend shapes, Clusters. **10 Hours**

### **Unit-2**

Biped Rig- Analyzing reference, Anatomy of human body, Bone placements, Setting up Torso, Biped Arms, Fingers, Legs/Foot controls, Skinning, Facial Rig-Anatomy of a face, The Facial Action Coding System(FACS), Mouth shapes, Phonemes, Animation controllers for Face, Character GUI. **12 Hours**

### **Unit 3:**

Muscle systems: Introduction to 3D Muscle system, Components of Muscle, Capsules, , Spline based muscle system, Stretch based muscle systems, Muscle Objects and skins, Assigning weights to Muscle skin, Muscle Builder, Muscle Parameters, Custom muscle systems, Wrinkles, fold, jiggle, Slide, Collide, Muscle control. **10 Hours**

### **Unit 4:**

Cloth Simulation: Cloth folds, pipe folds, zig zag folds, spiral folds, half-lock folds, diaper folds, drop folds, Introduction to nCloth, create pivot, wrap deformer, colliders, collision and cloth thickness, applying cloth simulation to rig, point and hinged constraints within nCloth, Set driven keys to help move the cloth, cloth stretching and joint pulling, cloth interaction with environment, real time cloth interaction. **12 Hours**

### **Unit 5:**

Hair Simulation: Maya Dynamics- nHair, Xgen, basic functions and workflows for Hair simulations, nHair toolset, Hair systems and nucleus nodes, Paint hair follicles tool, Hair clumps, collisions, Hair dynamics settings, caching simulations, groom able splines for short hair, Interactive Grooming, hair splines for longer hair, Hair interaction with different elements of nature. **8 Hours**

### **References:**

1. Loney SL, *Elements of statics & dynamics part 2*, Creative Media Partners 2018.
  2. Zerouni, Craig. *Houdini On the Spot*. Focal Press, 2007 .
  3. Roboniell, *Digital Character development: Theory and Practice*. CRC Press, 2016.
  4. Eric Keller, *Maya Visual Effects The Innovator's Guide: Autodesk*, Official Press, 2013.
  5. Autodesk *Getting Started with Maya* 2015.
- URL:[docs.autodesk.com/maya/2015/enu/gettingstarted](https://docs.autodesk.com/maya/2015/enu/gettingstarted)



## **GA305-3D Simulation & VFX (Practical)**

**Software & Tools:** Silhouette and Houdini/Autodesk Maya/Blender 3D

52 Hours

### **Rotoscopy:**

Biped

Bug or Insect

Quadruped

Character with hair/fur

Character Cloth

Soft and Rigid Body Simulation

Jiggle Animation

Simulating Sparks

3D Disintegration/Shattering Effects – Primary and Secondary Particles Creation and Disintegration

Creating Ocean and Waves

Candle flame Simulation

Creating Fire blast Simulation – Configuring Container and Emitter properties and Creating Debris

## **GA306-Compositing & AV Editing (Practical)**

**Practical Assignments**

52 Hours

**Software's and Tools:** Nuke/Adobe After effects/Adobe Premier pro/Adobe Photoshop

Video Stabilization

Chroma Keying and Matte

2D Camera Tracking

3D Camera Tracking and Alignment

### **Mate painting:**

Compositional Study, Establishing Mood, Set Modeling

Creating Background, Middle ground and Foreground

Camera Projection and Adding Final Details

Summer Scene / Winter or Snow Scene / Rain Scene Painting

### **Set Extension:**

Landscape / Exterior Set extension

Interior Set extension

Add Film AV editing using above compositing techniques

Documentary AV editing using above compositing techniques

## **GA307-New Media (Open Elective)**

**Objective:** To create the overview of various new media platforms and its usage **52 Hours**

### **Unit-1**

New Media, Evolution of Digital Communication, Personal Learning Networks, Digital Economics, online news, online political communication, Access and the Digital Divide.

10 Hours

### **Unit-2**

Social Media: Platforms, privacy, culture, identity and reputation, social networking and social capital, interacting visually, technological convergence and rise of mobile technology, measuring, monitoring and analysing social media, social media activism. 12 Hours

### **Unit-3**

Convergence-Emergence of convergence and its effects on broadcast media Language, structure and technology of new media, Creative, Business, Technical Skills in Convergence Media Programming. 10 Hours

**Unit-4** Cyber Media, Cyber Journalism, Comparison of cyber media with Print, TV & Radio. Online as a publishing medium, Online as an advertising tool, Impact of Web Journalism on reading habits of people and media industry, Analysis of important Indian news-based websites, Impact of globalization on Web Journalism, Cyber Laws and debates. 12 Hours

### **Unit-5**

Concept of e-governance & e-learning, finding information on the World Wide Web, Writing for blogs. 8 Hours

### **References:**

1. Coburn, Foster D. *Corel Draw*, Tata Mcgraw Hill Publishing Co Ltd, 2007
3. A. Jaiswal *Fundamentals of computer Information technology Today*, Wiley Dreamtech, 2014.
4. V. Rajaraman, *Fundamentals of computer*, Prentice Hall of India, 2006
5. G K Parthasarathy, *Computer Aided Communication*, Authors Press, 2006
6. R. Singhal, *Computer Application for Journalism*, Ess Publishers, 2015.
7. Chetan Shrivastava, *Introduction to Information Technology*, Kalyani Publishers, Delhi, 2008.
8. T. C. Bartee, *Digital Computer Fundamentals*, Mc Graw Hill Publication, 2007

## **IV SEMESTER**

## GA401-Communication Research

**Objective:** To expose students to various facets of media research process, relevance and scope.

**Total: 52 Hours**

### Unit 1

Research: Definitions of science and research; Relationship between theory and research; Characteristics of research, Nature and scope of communication research; Communication/media research areas: source, message, channel, receiver and effect. Communication research in India. 12 Hours

### Unit 2

Types of research: Qualitative and Quantitative; Pure and applied, Descriptive, Exploratory Correlation, Explanatory, Historical, Ex-post facto, Experimental; Survey research and Types: one- time survey, cross-sectional survey and longitudinal surveys; Qualitative research methods: case studies, ethnography, discourse analysis, content analysis, textual analysis. Quantitative content analysis: content categorization, coding, inter-coder reliability. 12 Hours

### Unit 3

Research Process: Selection of a research problem; Review of literature; Formulating objectives, research questions and hypotheses; Selecting a research design. Population and samples; Sampling methods; Sampling error; Concept, constructs and variables. 10 Hours

### Unit 4

Data Types- primary data, secondary data: Data measurement levels- nominal, ordinal, interval and ratio; Scales of measurements; Data collection methods- analysis of documents, field observations, interviews; Data collection tools- observation/ field diaries, interview schedules, and questionnaires; Reliability and validity of data; Data analysis: Descriptive statistics; Data analysis software -SPSS; Writing research report. 10 Hours

### Unit 5

Review of research papers, Prepare questionnaire for data collection, Prepare a proposal for a research study. 8 Hours

### Suggested Readings:

1. Wimmer & Dominick. *Mass Media Research: An Introduction*, Wadsworth. Singapore 2000.
2. Evanston IlSarlow, C. *Basic Research Methods*, McGraw- Hill, New Delhi, 1994.
3. A. Bryman. *Social Research Methods*. Oxford University Press. 2012.
4. Susanna Hornig Priest. *Doing Media Research: An Introduction*. Sage, California 1995.
5. C. R. Kothari, *Research Methodology: Methods and Techniques*, Willey Eastern Limited, 1985.

## GA402-Communication Skills

**Objective:** To equip students with necessary oral and written communication skills.

**52 Hours**

### Unit 1

Communication: Definition and functions; Elements and process of communication; Types of communication: Verbal and non-verbal; Intrapersonal, Interpersonal, Group and Mass communication: Communication models; Communication in team building and teamwork.

12 Hours

### Unit 2

Public speaking and presentation; Writing, reading, speaking, listening skills: Techniques of effective communication- Creative thinking, innovation, inquiry and analysis, Evaluation and syntheses of information.

10 Hours

### Unit 3

Development, interpretation, and expression of ideas through written, oral, and visual communication; Techniques of interpersonal relationships.

10 Hours

### Unit 4

Knowledge of civic responsibility; Ability to engage effectively in regional, national, and global communities through email, social networking sites, blogs; Introduction to translation, Concept and importance of translation.

12 Hours

### Unit 5

Writing exercises: Writing business letters, personal letters, preparing a resume, translation exercises.

8 Hours

### Suggested Readings:

1. Krishna Mohan and Meera Banerjee. *Developing Communication Skill*. McMillan Indian Ltd, 2000.
2. B.V. Pathak. *Communication Skill*. Nirali Prakashan. Pune, 2018.
3. A.K Jain, A.M Sheik, Pravin S.R Bhatia. *Professional Communication Skills*. S Chand Publishing. New Delhi, 2008.
4. Patri, V.R. *Essentials of Effective Communication*. Greenspan Publications. New Delhi, 2004.
5. Owen Hargie, *The Handbook of Communication Skills*, Routledge Publicaion, 2006.

## **GA402-Presentation Skills**

**Objective:** To equip students with basic abilities in presenting radio and television programmes.

**Total: 52 Hours**

### **Unit 1**

Anchoring and presentation, Qualities of an anchor, Styling, Anchoring according to program formats- News anchoring, Entertainment, Current affairs, News magazine, Shows etc. Anchoring techniques: Live shows and recorded programmes. 12 Hours

### **Unit 2**

Radio news reading and presentation methods; Pronunciation, Vocals stressing, Inflection, quotation marks, Rehearsals and promos. Handling Phone- in -programmes, On-line interviews. Moderating skills for radio discussion. RJing. 10 Hours

### **Unit 3**

Do's and don'ts for the presenter. Developing language skills. Breathing techniques, Pronunciation and diction, Intent and expression, Projecting the voice personality, gait and majesty, histrionic techniques, Reading v/s Presenting, Maintaining vocal health. Body Language, Introduction and overview of control room, Familiarization with the technical parameters of camera, Multi camera setups, light and sound. Using the teleprompter, Piece to camera. 12 Hours

### **Unit 4**

Creating a bond with the unseen audience, Preparing and researching for subjects, Interviews skills, Live reporting, Interaction with celebrity presenters. Anchoring for reality shows. 8 Hours

### **Unit 5**

Writing Exercise; Preparing RJ scripts, radio and television news scripts for presentation, Preparing questions for radio and television interviews, PTC scripts. 10 Hours

### **Suggested Readings:**

1. Stuart Hyde, *Television and Radio Announcing*, Routledge, 2009
2. Jenni Mills, *The Broadcast Voice*, Focal Press 2004.
3. RadioTalent Team, *Walking on Air: How to Be a Radio Presenter*, Create Space Independent Publishing Platform, 2013
4. Nancy Reardon, Tom Flynn, *On Camera: How To Report, Anchor & Interview*, Focal Press, 2013.
5. Janet Trewin, *Presenting on TV and Radio: An Insider's Guide*, Focal Press, 2003.

### **GA403- Animation Film Project**

Each student is required to produce a short animation film project of about 2-3 minutes duration during the 4<sup>th</sup> semester. The student shall take the project during internship and submit it on the specified date by the department for evaluation.

### **GA404-Internship**

Students shall undergo internship with the reputed Graphics and Animation studio for not less than 12 weeks. Students shall produce the diary of the activities undertaken during internship for valuation.

## **QUESTION PAPER PATTERN**

### **Theory question paper pattern**

- Each hard core theory paper (4 credit course) examination is for 70 marks.
- Each soft core (2 credit course) theory paper examination is for 70 marks.
- Open elective (4 credit course) theory paper examination is for 70 marks.

### **Question paper pattern for hard core (70 marks)**

Each hard core theory paper syllabus is divided into 5 units. The semester ending examination will be aimed at testing the student's proficiency and understanding in every unit of the syllabus. The blue print for the question paper pattern is as follows:

- Each question paper will consist of 9 questions.
- Each question carries 10 marks; out of 9 questions 7 questions shall be answered.
- Q.No. 1 to 8 descriptive questions shall be asked. Out of 8 questions 6 questions shall be answered ( $10 \times 6 = 60$ ).
- Q.No. 9 consists of 4 short notes which are compulsory. Each short note carries 2.5 marks ( $2.5 \times 4 = 10$ ).

### **Question paper pattern for soft core (70 marks)**

- Each soft core theory paper syllabus is divided into 5 units.
- Each question paper will consist of 9 questions.
- Each question carries 10 marks; out of 9 questions 7 questions shall be answered. Q.No. 1 to 8 descriptive questions shall be asked. Out of 8 questions 6 questions shall be answered ( $10 \times 6 = 60$ ).
- Q.No. 9 consists of 4 short notes which are compulsory. Each short note carries 2.5 marks ( $2.5 \times 4 = 10$ ).

### **Question paper pattern for open elective (70 marks)**

Each question paper will consist of 3 sections: A, B and C.

- Part A: Ten questions of 2 marks each. All questions are compulsory ( $2 \times 10 = 20$  marks).
- Part B: Six questions of 5 mark each, out of which four to be answered ( $4 \times 5 = 20$  marks).
- Part C: Five questions of 10 marks each, out of which three to be answered ( $3 \times 10 = 30$  marks)



### **Internal Assessment**

- Internal Assessment for each theory paper is 30 marks and practical paper is 15 marks.
- 10 marks reserved for internal tests. Internal tests shall be conducted for 20 marks in each paper twice in a semester.
- 10 marks reserved for assignments
- 10 marks reserved for attendance.

Allotment of marks for attendance:

- Attendance greater than 95% - 10 marks
- Attendance between 95 – 91% - 8 marks
- Attendance between 90 – 86 % - 6 marks
- Attendance between 85 – 81 % - 4 marks
- Attendance between 80 – 76 % - 2 marks
- Attendance less than 75% - ineligible to appear for examination.

### **Practical examination**

Semester end practical examination for each practical course is for 50 marks. Internal assessment for each practical course is for 15 marks based on attendance and assignments.

- 10 marks reserved for practical records
- 25 marks reserved for practical examination.

### **Project evaluation**

Graphic Project will be evaluated at the end of the semester for 100 marks

- 10 marks reserved for concept
- 10 marks reserved for design elements
- 10 marks reserved for Sound/navigation/integration
- 10 marks reserved for overall presentation
- 10 marks reserved for Viva voce

Major Project will be evaluated at the end of the semester for 200 marks.

- 25 marks reserved for concept and story
- 25 marks reserved for organization
- 25 marks reserved for Design/Navigation/interaction
- 25 marks reserved for Sound/ voice over/BGM
- 25 marks reserved for Editing
- 25 marks reserved for documentation.
- 50 marks reserved for Viva voce