

B.Sc. (Animation & Multimedia)

SYLLABUS (First Semester)

BAM 108 EXPERIMENTAL ANIMATION

Introduction to experimental animation, Orientation into visual art form, orientation into time and performing art form, relevance of message and medium and their relationship, history of experimental animation.

Introduction to cut-out animation (cardboard sets, houses, layouts designing) clay animation, flip books, stop motion technique, Animation set designing (table top), Clay character modeling, table-top model lighting, technique of working in groups.

Experimental animation work with different media like: Water colours , Poster colours , Water proof colours , Oil pastel colours, Acrylic colours, Pencil colours, Charcoal, Pen and Ink, Using dry brush and other waste materials such as sand , stones, grass, hardboard, different types of colour papers & clay etc.

Students should submit a project (in groups) at the end of the semester.

BAM 102 : FOUNDATION COURSE IN CLASSICAL ANIMATION

The basic of traditional an 2D animation. Introduction to the skill required thereof. Beginning life drawing. Use of simple shapes.

How to draw the drawings with the help of basic shapes, Animal study, Human anatomy, Shading techniques, Live model study, Introduction- Importance of confidence, Difference between “looking at the drawing” and “seeing the drawing”, What is observation, Procedure- How to approach, Importance of Guideline- Line of action, Overcome the fear, Drawing for animation, An Introduction on how to make drawings for animation, Shapes and forms, About 2d and 3d drawings, Caricaturing – fundamentals, Exaggeration, Attitude, Silhouettes, Boundary breaking exercises and warm ups, gesture drawing, Line drawing and quick sketches, Drawing from observation, memory and imagination

BAM 103 : PRINCIPLES OF ANIMATION

Introduction to the equipment. The animator’s drawing tools, The animation table (light box, Field charts, Line tests, The exposure sheet (“X” sheet), Perspective in animation. Perspective- blocks and boxes, Vanishing point in horizon, Outside horizon and indoors, Scale diagrams in perspective, Different view points, Importance of eye level, Curves and cylinders in perspective, Perspective in 1 point, Perspective in 2 point, Perspective in 3 point, Perspective in multiple points, Multiple points in animation perspective, Objects in perspective, Animals in perspective, Human forms in perspective, Cast shadow exercise, Shapes in perspective with light and shade, Foreshortening, Foreshortening of cylinders, Construction drawing of animals with foreshortened cylindrical forms.

BAM 104 : CREATIVITY – I

Demonstration and lectures on required skills for an animation artist, Visual and creative development of an artist, How to draw gestures, facial expressions etc.

Introduction to pose to pose sketching (Action analysis). Rapid sketching from live models, Introduction to Acting, Modelling, Sketching from Acting, Sketching from live models, Introduction to Rapid Sketching Techniques, Sketching from Memory, live action. Basics of Acting - Style breaking, Movements. Imagination and implementation - Making gestures, Facial expressions, Acting on small sentences, Acting in couple and acting in group. Acting as story teller - Single act on a song or a small story, Group competition, Usage of Acting into animation - Acting V/s Animation, Tell me the situation, Cat and mouse.

BAM 105 : Computer Laboratory on 2D Animation

Flash workflow & Workspace

1. Introduction to flash
2. Workspace overview
3. Customize the workshop
4. Using the Stage and Tools panel
5. About the Timeline
6. Using Flash panels
 - a) Property inspector
 - b) Library panel
 - c) Movie Explorer
 - d) History panel
 - e) Colour panel

Working with Flash documents

1. About Flash files
2. Create or open a document and set its properties
3. View a document when multiple documents are open
4. Working with project
5. Importing artwork into Flash
(Working with Photoshop PSD files
(PSD file import preferences))
6. Adding media to the library
7. Work with libraries & its items
8. Working with timeline
9. Working with scenes
10. Find and replace command
11. About templates

Drawing Basis

1. about vector and bitmap graphics
2. Flash drawing mode
3. About overlapping shapes
4. Using Flash drawing and painting tools
 - a) Draw with the pencil tolls
 - b) Draw straight lines
5. Reshaping lines and shape outlines
6. Snapping (object snapping, pixel snapping, snap alignment)
7. Working with colour, strokes and fills

Working with graphic objects

1. Selection objects
2. Moving, copying and deleting objects
3. Arranging object (Stack, Align, Group, Break apart groups and object)
4. Transforming object

Using symbols, instances and library assets

1. Symbols overview
2. Types of symbols
3. Create symbols
4. Convert animation on the Stage into a movie clip
5. Duplicate symbols
6. Edit symbols
7. Working with symbol instances

Creating animation

1. Animation basics
 - a) Creating motion
 - b) Creating key frames
 - c) Representations of animation in the Timeline
 - d) Frame rates
 - e) Frame-by-frame animation
 - f) Onion skinning
 - g) Extend still images
 - h) Mask layers
2. Using Timeline effects
3. Twinned animation
4. Special effects
 - a) Filter
 - b) Animation Filters
 - c) Create preset filter libraries
5. Blend modes in Flash
6. Working with text
7. Working with sound
8. Working with video

BAM 109 : INTRODUCTION TO 3D

Introduction to 3D, Interface of 3D Max, Basics of 3D Max Modeling , Exporting, Using the menus. Floating and docking, View port manipulation. Command panel, Customising the interface.

Using drag and drop feature, Introduction to different workspaces.

Geometry, sub objects, Extruding, welding, bridging etc. Recognizing the workspaces. Introduction to modifiers and modifier gizmos. Familiarity with common modifier like bend, editpoly, Xform wave, lathe symmetry etc. Using the modifier stack. Navigating the modifier stack. Hot keys, User defined hot keys.

BAM 107 : Computer Laboratory on Multimedia – I

- Make some Graphics using lines.
- Draw some graphics on paper by combining basic shapes.
- Make drawing on paper to tell a folktale.
- Draw logos for the companies using design tool.
- Make a sketch of some cricket players.
- Make a sketch of some cricket players
- Make some layout on paper for presentation.
- Make a perfect cropping of some images using Photoshop.
- Prepare a cut-out of some images using Photoshop.
- Place nice back ground for that images.
- Prepare nice back ground using gradient colour.
- Scan Various images.
- Colour adjustment of that images.
- Convert a B & W image into colour (Use Variation)
- Design a text logo for Magazine / Newspaper.
- Dsign visiting card.
- Design greetings card.
- Design kid's Magazine Cover.
- Design college Magazine Cover.
- Choose a theme (Music, Festivals, Sports, Dance) and design 5-8 graphics on them.
- Make any Advertisements from newspaper.
- Design that Ad from your own style.
- Make Nature scene (winter) digital painting.
- Make Nature scene (summer) digital painting.
- Design Pamphlets on any Company.
- Design information Brochures on any company.
- Make digital painting (use brush, pencil , smudge etc).
- Lake something like modern art keeping in mind colour combination.
- Make a collage of Indian Art & Culture.
- Make a Collage of wildlife Animals.
- Make a portrait of celebrity (Digital Painting).
- Play with Photoshop filters.
- Bring some object & try to make in Computer.
- Make your own cartoon character.
- Design a brochure.
- Design motifs Tribe art.
- Make an animal character.
- Plan a story of that character & make its back grounds in three/four frames.
- Make Posters on Nature / earth.
- Make lists of Animated film & special effect.

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Syllabus (Second Semester)

BAM 201 : ANIMATION TECHNIQUES

Drawing for Animation, Exercises and warm ups on pegging sheet, Quick Studies from real life, Sequential movement drawing, Caricaturing the Action. Thumbnails, Drama and psychological effect, Motion Studies, Drawing for motion, The Body language, Re-defining the drawings, Introduction to animation production process, 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 of animal and human.

BAM 202 : CREATIVITY - II

Genesis of creative impulse and giving it concrete form. Overview of writing for different mediums i.e. TV , radio, newspaper and other performing art formats. Basic principles and tools of writing. Role of language.

Introduction to subject, theme, plot. Definition and explanation of story writing. Theory of projection of conflict. Presentation of the plot. Characterization. Case studies with successful writers. Development of story. Basic elements and tools of script writing. Writing for different groups - i.e. children, youth, women and rural population.

BAM 203 : AUDIO – VIDEO TOOLS & TECHNOLOGY

Digitization, AV data from tape to computer hard disk. Understanding the playback deck, understanding signal processing of S-video, fire wire and composite video.

Editing Work Station management – disk space & speed requirement. Broadband and streaming video technology. Using Editing Software – editing basics and implementation of various techniques used in non-linear editing. Mastering final edit line – audio levels, colour correction, audio mixing, mixed and un-mixed versions, importing and applying compatible graphics files. Understanding compression and its affects along with various methods.

BAM 204 : COMPUTER LABORATORY ON COMPUTER GRAPHICS & MULTIMEDIA – II

Introduction to 2D painting and texture tools, and their role in the 2D and 3D animation production. Understanding basic file formats like PAL, NTSC, HDTV, Image aspect ratio, pixel depth and density. Introduction to file resolution, and balancing the quality and file size, introduction to web related options such as “save for web”, Slice tool etc. Introduction various paint techniques involved in animation production. Introduction to concepts like background, over lays, under lays and painting them in 2D painting tools. Introduction to the texturing in 3D animation and creating various textures

BAM 205 : COMPUTER LABORATORY ON 2D DIGITAL ANIMATION

Introduction to the basic 2D digital animation techniques, implementing the traditional 2D techniques in digital animation. Understanding the concepts of layers and drawings. Introduction to the Ink paint of drawings, Introduction to X- sheet (digital X- sheets) understanding the concepts of camera, panning background and camera for effective scene compositing, adding pegs to camera and elements layers for adding panning and truck in and truck out. Exporting animation in to various file formats as per the out put requirements. Introduction to multiple panning and multiple camera.

BAM 206 : COMPUTER LABORATORY ON 3D GRAPHICS ANIMATION DESIGN

Introduction to 3D interface, understanding the concept of four view ports. Aligning objects in the each view port in X, Y, Z axis. File navigation, saving and opening the files, customizing the interface. Introduction to the Standard and Extended primitives. Understanding the spline tools, creating 3D objects from 2D spline shapes. Introduction to creating complex objects with standard and extended primitives. Modeling objects with Lathe, Loft, Extrude etc modifiers. Introduction to the 3D elevators and walk through.

BAM 207 : COMPUTER LABORATORY ON INTERACTIVE MULTIMEDIA

Basic

- Introduction to computer
- Hardware and software

MS. DOS

- Introduction
- Various commands
- How these commands work

Windows

- Introduction
- Various Operating systems
- File Systems
- Sharing and Securities

M.S Office

- Introduction
- MS WORD
- MS Power Point
- MS Excel

Internet

- Introduction
- Creating & Managing Mail Accounts
- Searching

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Syllabus (Third Semester)

BAM 301 : ADVANCED ANIMATION PRINCIPLES

Timing for inanimate objects, Rotating objects, Spacing of drawings.(General Remarks)
Spacing of drawings, Timing a slow action, Timing a fast action, Getting into and out of holds, Single frames or double frames, Timing an oscillating moment, Bird flight, Other types of animation cycles, Special effects, Flames, Smoke, Water, Rain, Snow, Explosions, Repeat movements of inanimate objects, Accentuating a movement, Strobing, Basic expressions, Lip movement, Key animation, Clean up, Character design, Shapes to define characteristics and attitudes, Different characters –e.g. hero, villain, secondary and incidental characters, Characterization(acting), Change of expression, Look for the contrast, An acting point, Symmetry “OR” Twinning, dialogues in animation-as a part of acting, SUBPOINTS, Phrasing, Picture and sound sync, Accents, Attitude, The secret, Animation with soundtrack, The sound track, Dialogue and voice over.

BAM 302 : DIGITAL TELEVISION PRODUCTION

Basic art of filmmaking, using currently available digital software/hardware tools. Overview of preproduction planning- program ideas, production models, Preproduction & Post-Production activities –Writing the program proposal, preparing a budget, presenting the proposal, Writing the script, Director’s roles & procedures, Visualization & sequencing, Shooting, Aesthetics of Editing, Role of audio & effects, Mix and composite, source material into a finished fine edit product.

BAM 303 : COMPUTER LAB ON 2D INK PAINT COMPOSITING TECHNIQUES

Introduction to advanced 2D animation compositing and Ink paint techniques. Creating color models as per the model sheets. Creating color pallets as required paint and ink fields. Understand the dope sheets / X- sheets in production level. Arranging and adjusting the layers as per X- sheet. Advanced panning of camera and background, multiple cameras for showing depth in-between background, over lay and character layers. Introduction to compositing special effects into a scene using 3d graphics and 3d special effects in 2d layers.

BAM 304 : COMPUTER LAB ON 3D MODELING

Introduction to various 3D modeling Techniques :- Organic Modeling, Mechanical & Technical Modellng. Using Templates for Modeling. Polygon, Patch Modeling & NURBS modellng. Concept of edit mesh and edit poly. Low poly modeling. Modifiers and compound objects. How to manage vertex, faces and polygon selections. Introduction to Basic Rigging. Meshsmooth and its options. concepts of Mirroring, Cloning, Merging and exporting the models from scene to scene for facilitating faster production flow.

BAM 305:COMPUTER LAB ON WEB DESIGNING & DEVELOPMENT

Developing a website for portfolio, Flash action scripting . embedding animation in web page, Using HTML Integrating front page,

Introduction to Internet Technology.

- Introduction to Various Protocols.
- Introduction to Various Types of Web Sites(.com,.edu,.net etc).

Introduction to Web Design.

- Uses of Web Site.
- Intro to Tools used for Web Designing.
- Into to Complete process from Web Designing to Web Publishing and Updating.

Html

- Detailed knowledge of HTML Tags.

CSS Essentials.

Fundamentals of JavaScript

Fundamentals of Flash Scripting.

Web Design through Front Page.

Create Basic Website Layout

BAM 306 : DIPLOMA SHOW CASE PROJECT – I

Students produce short projects as experiments in concepts, style or technology and are encouraged to take risks, break rules and explore their own unique creative potential. Students may either work in 2D or 3D, according to their inclination prerequisites, or, with consent of the Faculty, they may work in any medium appropriate to their experience and resources. While producing their own work, students also serve as production planning team and production crew for all other projects.

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Syllabus (Fourth Semester)

BAM 401 : PRODUCTION FOR ANIMATION

Directing and Analyzing a film, Animation film techniques, Film language in action, Adaptation of film language into animation, Student project- Character Designs, Overview, Working with a script/ screenplay, Camera angles, Movements of the camera- Pans, Tilts Truck in and Truck outs, Shots and Scenes, Dramatic effects, Visual language and readability, Visual continuity, Timing the storyboard, Analyze storyboard of a film, Student project- story boarding, Layout and design, Focus on the design of the film, background design and composition as well as camera aspects and film language, Working with storyboard, Field size, Design and rendering the scenes layout and composition, Pans, Trucks and Multiple Pans, Scene planning, Realistic touches; character interaction with the scene and the backgrounds, Analyze film layouts, Design and layouts, clean of up of BGs and BG painting, Sound concepts and effects for the film, The sound track, Sound equipment and theory, Dialogue and Voice-over, Exposure-sheet doping, Break down, reading the sound track. editing- Image and voice, sound FX and Music.

BAM 407 COMPUTER LAB ON 3D CHARACTER DESIGN

Developing a character and personality in terms of the story, Distinction between heavy and light characters, body types, Alien musculature – use of reptiles, mammals and amphibians. Fat Distribution, costume study , Character designing on paper using pencil with proper anatomy. Conceptual art to draw side and front views of the character in T pose. Detailed modeling of the character body parts such as hands, legs, ears etc. Ideas to generate new innovative characters and discuss their body language as per the rigging needs.

How to create your own character design on paper using pencil with proper anatomy. Conceptual art to draw side and front views of the character in T pose. Importing the front and side views of the character in 3D. To create the character the character with proper mesh flow. Detailed modeling of the character body parts such as hands, legs, ears etc. Ideas to generate new innovative characters and discuss their body language as per the rigging needs.

BAM 403 : COMPUTER LABORATORY ON COMPOSITING -I

Concepts for Broadcast animation for logos, channel IDs and montages. Multi-Layer Compositing, Special Effects, Superimposition and Titling.

Exporting various file format outputs as per the end user requirements.

Introduction to the batch render and work groups. Adding cameras and lights to a simple scene to make a complex compositing. Adding 2D background and elements into a 3D character layers. Creating object, material ID's for further adding special effects. Effects for Digital Video 2D layers and 3D layers for more effective outputs adding particle effects into a scene. Introduction to the color character and keying. Editing the real time video with the CG based scene and merging both of them to create a final output. Exporting various file format outputs as per the end user requirements. Introduction to the batch render and work groups. Introduction to the concepts of editing in terms of compositing, adding special effects in built in compositing software. To make a simple CG shot into a perfect output.

Chroma Keying, Luma Key, Blue screen, Key frame Text & Layer animation & 2D particles, Effects etc. Color correction, Introduction to the 3D compositing concepts i.e. Layers and masking. Rotoscoping, Rig removal, morphing.

BAM 404 : COMPUTER LAB ON MAYA FUNDAMENTALS

Introduction to the interface of Maya. Menu bar, Tool bar, Hot box. Using the shelf.

Hotkeys. Using the spacebar. Manipulating a view. Creating objects. Simple primitives. Lights, cameras, selecting objects, types of selection- single selection, adding and subtracting selection, edit menu selection options. Marquee selection, Lasso selection, selection mask.

Using hyper shade, relationship editor, hyper graph and outliner. The channel box.

Duplicating objects, pivot points, introduction to snapping-2D snapping and 3D snapping.

Using layers. Introduction to particles and materials. Rendering a still, Rendering an AVI, Rendering an image sequence. Introduction to bones.

BAM 405 : COMPUTER LAB ON 3D CHARACTER ANIMATION

Applying classical 2D animation techniques i.e. Stretch and squash for 3D characters. Walk cycles and Run cycles, creating the illusion of weight.

Introduction to scene animation and key framing. Animation modifiers, track views, constrains and controllers. Creating and working with biped characters, bone system, rigging the characters and rigging solutions to Anatomical Problems.

BAM 406 : DIPLOMA SHOW CASE PROJECT - II

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Syllabus (Fifth Semester)

BAM 501 : FUNDAMENTALS OF GAME TECHNOLOGY

Introduction to game engine and its components, game assets. Overview of component interaction inside game engine.

Game theory. The process of game development and its management. Concept of machinima, editing game engine footage.

Introduction to scripting and customizing game engine. Game testing- internal testing, external testing.

BAM 502 : DIRECTION FOR ANIMATION

The thought process of a director, Learning to take charge. The director's approach to text analysis and articulation of ideas. Interpretation and critique of scripts and storyboard to develop an over all vision of production. Techniques of set composition , blocking and movement. Time management, rehearsal schedules, staging , scene work . Blending all the theoretical concepts into a practical solution for the problem at hand. Being the king of the set. Managing a creative crew to bring out the director's vision. Leadership.

BAM 503 : COMPUTER LABORATORY ON ADVANCED CONCEPTS OF 3D MATERIALS, LIGHTING & RENDERING

Introduction to basic material types & procedurals. Study of concepts :- opacity, smoothness, specularly and color. Drawing 2d art templates. Creating complex effects like water fire and smoke. Unwrapping the map for various 3D characters.

Introduction to the mapping and advanced texturing techniques. Shadow maps, Raytraced shadows & radiosity. Concept of lighting system and shadows.

Introduction to 3 point, 2 point and dramatic lighting. Creating photo real environments and textures. Applying on to a 3D objects. Understanding how to produce final output, rendering the scene, rendering the effects, network rendering. Introduction to advance lighting effects. Mental ray rendering and Toon shade rendering. Creating various output as per the end user requirements and maintaining the resolution.

BAM 504 : COMPUTER LAB ON ADVANCED 3D ANIMATION.

Producing natural articulation of realistic & semi-realistic, imaginary characters. Body Language, Attitude, Acting, Character Interaction, Animal walks & runs, snakes & birds.

BAM 505: COMPUTER LABORATORY ON GAMING TECHNOLOGY.

Game engine navigation, user interface, menu bar and tool box. Introduction to level design, prop design and static elements of game art. Creating textures for levels and making the level functional. Expanding the level by adding lights and objects. Understanding machinima, capturing machinima to make short movie.

BAM 506: DEGREE SHOW CASE PROJECT - I

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Syllabus (Sixth Semester)

BAM 601 : COMPUTER LABORATORY ON ADVANCE ANIMATION TOOLS

Animation Technique for Cloth, Hair, Fur & Fluids, Dynamics of rigid body & Soft Body, springs, Sprite Direction, Sprite Sequences, Depth of Field, Combining Sequences, Crowd Effects. Understanding Dynamic Attributes, Fluid Emitters Fluid Container Attributes.

BAM 602 : COMPUTER LABORATORY ON EMERGING ANIMATION TECHNOLOGIES

Introduction to popular plugins. Extension technologies. Plugins for detailed modelling, hyper real muscle systems. Hyper real facial animation. Extensions for dirt, rust and other realistic effects. The importance and requirement of plugins and extensions with respect to the concerned project, its deadline and economy.

Overview of existing extensions and their compatibility.

BAM 603 : COMPUTER LABORATORY ON GAME DEVELOPMENT

Working with interactive elements, movers and triggers. Advance techniques emitters. sprites. Import of animatable models inside game engine. Design considerations. Debugging, error hunting and diagnosis. Advance scripting – creating scripted sequences, using an action list and logical conditions.

BAM 604 : COMPUTER LABORATORY ON 3D ADVANCED MODELLING, CHARACTER RIGGING, RENDERING

Modelling a high poly model. Technical issues related to managing a high poly model. Managing the display of huge sets and models in the view port – camera clipping , proxy display. Concept of polygon loops.

Introduction to automated rigging systems and methods. Embedding small scripts in the hierarchy control system to save time and facilitate handling.

Advanced rigging. Vertex weighting techniques.

Animating and rendering layered scenes. Using advanced rigs to achieve natural articulation of characters.

BAM 605: COMPUTER LABORATORY ON 3D CHARACTER DESIGN.

Introduction to typical characters- heroes, villains, comedian, heroine.

Proportion, age, weight and costume. Thinking about the culture and society of the character.

Modeling the character. Using templates and view port references. Optimizing the final model. Rectifying the mesh. Basic posture. Testing the model.

Appeal and suitability for animation. Inventing new characters- fantasy characters ,historical characters and futuristic characters. Difference between hi-poly and low-poly character.

BAM 606 : DEGREE SHOW CASE PROJECT – II

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