Study & Evaluation Scheme

of

Bachelor of Science (Animation)

B.Sc. Animation

[Applicable w.e.f. Academic Session 2013-14 till revised]

[With revision approved by AC/EC meeting date September 21, 2013]

TEERTHANKER MAHAVEER UNIVERSITY

N.H.-24, Delhi Road, Moradabad, Uttar Pradesh-244001

Website: www.tmu.ac.in

TEERTHANKER MAHAVEER UNIVERSITY

(Established under Govt. of U. P. Act No. 30, 2008)
Delhi Road, Bagarpur,, Moradabad (U.P)

Study & Evaluation Scheme
of
Bachelor of Science (Animation)
SUMMARY

Programme	**:** B.Sc. Animation
Duration	**:** Three year full time (Six Semesters)
Medium	**:** English
Minimum Required Attendance	**:** 75%
Maximum Credits	**:** 153
Minimum Credits required for the degree	**:** 148

Assessment

Internal	External	Total
30	70	100

Internal Evaluation (Theory Papers)

Class Test I	Class Test II	Class Test III	Assignment(s)	Other Activity (including attendanc	Total
Best two out of the three					
10	10	10	5	5	30

Internal	External	Total
50	50	100

Duration of Examination

External	Internal
3 hrs.	1 ½ hr.

To qualify the course a student is required to secure a minimum of 40% marks in aggregate including the semester-end examination and teachers continuous evaluation.(i.e. both internal and external).

A candidate who secures less than 40% of marks in a course shall be deemed to have failed in thatcourse. The student should have at least 50% marks in aggregate to qualify the semester end examination. In case a student has secured more than 40% in each course, but less than 50% overall in the semester end examination, he/she shall re-appear in courses where the marks are less than 50% to achieve the required aggregate percentage (of 50%) in the semester end examination.

Question Paper Structure:

1. The question paper shall consist of eight questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 8 parts representing all units of the syllabus and students shall have to answer any five (weightage 4 marks each).
2. *Out of the remaining seven questions, student shall be required to attempt any five questions. There will be minimum one and maximum two questions from each unit of the syllabus. The weightage of Question No. 2 to 8 shall be 10 marks each.*

B.Sc. ANIMATION
Semester I

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BSA 101	Fundamentals of computers & MS- Office	3	2	-	4	30	70	100
2	BSA 103	Environmental Studies	3	2	-	4	30	70	100
3	BSA 104	Fundamentals of animation and basic sketching.	4	2	-	5	30	70	100
4	BSA 105	Professional Communication-I	2			2	30	70	100
5	BSA 106	Graphic Design Adobe Illustrator And Coral DRAW	4	2	-	5	30	70	100
6	BSA 153	MS- Office & Internet (LAB)	-	-	6	3	50	50	100
7	BSA 154	Illustrator & CorelDraw (LAB)	-	-	6	3	50	50	100
Total			**16**	**8**	**12**	**26**	**250**	**450**	**700**

Semester II

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BSA 201	Anatomy Drawing	4	2	-	5	30	70	100
2	BSA 202	Principles of Animation	3	2	-	4	30	70	100
3	BSA 203	Graphic Design (Adobe Photoshop)	4	2	-	5	30	70	100
4	BSA 204	Animation Techniques	3	2	-	4	30	70	100
5	BSA 205	Professional Communication-II	2			2	30	70	100
6	BSA 251	Animation Principles (Lab)	-	-	6	3	50	50	100
7	BSA 252	Adobe Photoshop (Lab)	-	-	6	3	50	50	100
Total			**16**	**8**	**12**	**26**	**250**	**450**	**700**

Semester III

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BSA 301	Elements of Preproduction	4	2	-	5	30	70	100
2	BSA 302	2D Digital Animation: Flash	4	2	-	5	30	70	100
3	BSA 303	Advanced Animation Principles	3	2	-	4	30	70	100
4	BSA 304	Audio & Video-Editing: Tools & technology	3	2	-	4	30	70	100
5	BSA 305	Story Telling	2			2	25+25*	50	100
6	BSA 351	Adobe Flash(Mini project) (Lab)	-	-	6	3	50	50	100
7	BSA 352	Sound forge & Adobe (Lab)	-	-	6	3	50	50	100
Total			**16**	**8**	**12**	**26**	**270**	**430**	**700**

*25 marks will be awarded after internal assessment of 5 stories submitted by student.

Semester IV

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BSA 401	3D Max Modeling	4	2	-	5	30	70	100
2	BSA 404	Advanced modeling –Z Brush	4	2		5	30	70	100
3	BSA 405	Script Writing	2		-	2	25+25*	50	100
4	BSA 406	Animation in 3D Max	4	2	-	5	30	70	100
5	BSA 451	Autodesk 3D Max (Lab)	-		6	3	50	50	100
6	BSA 453	Z- Brush (Lab)	-	-	6	3	50	50	100
7	BSA 454	Mini Project	-	-	4	2	50	50	100
Total			**14**	**6**	**16**	**25**	**290**	**410**	**700**

*25 marks will be awarded after internal assessment of 5 scripts submitted by student.

Semester V

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BSA 505	MAYA fundamentals	4	2	-	5	30	70	100
2	BSA 506	3D Texturing, Rigging & Muscle systems	4	2	-	5	30	70	100
3	BSA 507	Maya Dynamics and Dynamics	4	2	-	5	30	70	100
4	BSA 508	3D Animation basics	4	2	-	5	30	70	100
5	BSA 551	Autodesk Maya (Lab)	-	-	6	3	50	50	100
6	BSA 554	3D Animation (Lab)	-	-	6	3	50	50	100
Total			**16**	**8**	**12**	**26**	**220**	**380**	**600**

Semester VI

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BSA 601	Fundamentals of Game Technology	4	2	-	5	30	70	100
2	BSA 603	3D Character Animation, Lighting & Rendering	4		-	4	30	70	100
3	BSA 604	Digital Compositing	4	2	-	5	30	70	100
4	BSA 652	3D Character Animation, Lighting & Rendering (Lab)	-	-	6	3	50	50	100
5	BSA 654	Digital Compositing (Lab)	-		6	3	50	50	100
6	BSA 655	Major Project	-	-	8	4	50	50	100
Total			**12**	**6**	**18**	**24**	**240**	**360**	**600**

Evaluation of Practical Examination:

Internal Evaluation (50 marks)

Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point scale which would include the sheet drawn by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

B.Sc. Animation
Semester I
Fundamentals of computers & MS- Office

Course Code: BSA101 **L-3, T-2, P-0, C-4**

Course Contents

Unit I

Introduction and definition of computer, functional components of a computer system (Input, CPU, Storage, Output Unit), types of memory and memory hierarchy, functioning inside a computer, classification of computers, Software – Introduction, types of software with examples, Introduction to languages, Compiler, Interpreter and Assembler. **(Lecture 08)**

Unit II

Essential Components of Computer, Hardware – Input Devices – Keyboard, Printing Devices, Scanner, Bar Code Reader, Output Devices – Visual Display Unit (VDU), Printers, Plotters, Types of internet connections, Use of Internet to enhance knowledge, searching on internet, downloading/uploading contents from/to internet, creating e-mail account, etiquettes for communication with email, **(Lecture 08)**

Unit III

Starting MS WORD 2007, Creating and formatting a document, Changing fonts style and size, Table Creation and operations, Autocorrect, Auto text, spell Check, Inserting objects, Page setup, Page Preview, Printing a document, Mail Merge. **(Lecture 08)**

Unit IV

Starting MS – Excel 2007, Work sheet, cell inserting Data into Rows/ Columns, Alignment, Text wrapping , Sorting data, Auto Sum, Use of functions, referencing formula cells in other formulae, Naming cells, Generating graphs, Worksheet data and charts with Excel, Creating Hyperlink, Page set up, Print Preview, Printing Worksheets. **(Lecture 08)**

Unit V

Starting MS – Power Point 2007, Creating a presentation using auto content Wizard, Blank Presentation, creating, saving and printing a presentation, Adding a slide to presentation, Navigating through a presentation, slide sorter, slide show, editing slides, Using Clipart, Word art gallery, Adding Transition and Animation effects, setting timings for slide show. Starting MS – Access 2007 Creating tables, queries, forms, reports, pages, macro, module.

(Lecture 08)

Suggested Readings:

1. Ron Mansfield, *Working in Microsoft Office,* TMH
2. Sinha P. K., *Computer Fundamentals,* BPB
3. Kapil Govil, *Beginner's Guide: Computer Fundamentals,* Rishabh Publishing House, Agra

Reference Books:

1. V. Rajaraman, *Fundamentals of Computers,* PHI
2. Peter Norton's, *Introduction to Computers,* TMH

Graphics Design (Adobe Illustrator &CorelDraw)

Course Code: BSA106 **L-4, T-2, P-0, C-5**

Course Contents

Unit I. **Introduction to Adobe Illustrator:** Introduction to Adobe Illustrator, work area and workspaces and tools. Opening files, importing art work, viewing art work, rulers and grids, Drawing in Illustrator, drawing lines and shapes, pencil tool, pen tool, editing drawing, tracing, symbols, colouring, applying colours, swatches, adjusting colour and colour settings. **(Lecture 08)**

Unit II

Painting with Illustrator, fills, strokes, brushes, transparency,, blending, gradient, meshes and colour blending. Selecting, transformation, scaling, grouping, reshaping, cutting, blending of object, creating 3D object, text and typing, special effects, filters, shadows, glow, feathering graphic styles**.**

(Lecture 08)

Unit III

Getting Started with Corel Draw X4,Explore the Corel Draw X4 Interface, Customize the Workspace, Differentiate Between Raster and Vector Graphics, importing art work, Set Up a Drawing Page, Draw Shapes, Draw Lines, Bezier, Curves, Shape Tool, Include Objects,

(Lecture 08)

Unit IV

Working with Fills, Pattern, differentiates between RGB and CMYK color and color settings. Working with text tool, Point Text and Paragraph text, Add Text to Objects, Fit Text on a Path, Work with Paragraph Text, Wrap Paragraph text, Work with a Text Style, Insert Special Characters, Spell Check a Documents Create a Table, Modify a Table, Format a Table, Group and ungroup object, Masking Objects.

(Lecture 08)

Unit V

Apply Artistic Effects to Objects. Convert Bitmap Images to Vector Images, Work with Print Styles, Understand Page Elements, Create Layers, Master page, Create Custom Shapes, Format Objects, Edit Objects, Enhance Images, Export Corel Draw Files in Other Formats,

(Lecture 08)

Text Books:

1. Adobe Illustrator CS5 Bible by Steve Johnson.
2. Adobe Illustrator CS5 Bible by Ted Alspach
3. Coral DrawX4 The Official Guide Gary David Boutan
4. Straight to the point Coral DrawX4 Dinesh Maidanani
5. Coral DrawX4 in simple steps- Kogen solution

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ENVIRONMENTAL STUDIES

Course Code: BCA/IDD204/BSA-103 **L-3, T-2, P-0, C-4**

Course Contents

Unit - I

The Multidisciplinary nature of environmental studies: Definition, Nature, Scope and Importance; Types and components of environment; goals of environmental education; Global environmental crisis. **(Lecture 08)**

Unit - II

Natural resources: Renewable and non-renewable resources Nature and Natural resources their conservation and associated problems. Energy resources: Renewable and Nonrenewable energy sources, use of alternate energy sources, Energy conservation **(Lecture 08)**

Unit - III

Ecology and Ecosystems: Concept of ecology, autecology and synecology, population ecology, community ecology Concept of an ecosystem; different types of ecosystem, Producers, consumers and decomposers • Energy flow in the ecosystem, energy flow models • Food chains, food webs and ecological pyramids biogeochemical cycles: Pattern and basic types of biogeochemical cycles (Nitrogen, Phosphorus) **(Lecture 08)**

Unit - IV

Environmental Pollution: Definition, Sources, Causes, effects and control measures of: - Air pollution, Water pollution, and Soil pollution Noise pollution.

Solid waste management: causes, effects and control measures of biomedical wastes and municipal solid wastes. **(Lecture 08)**

Unit - V

Environmental Pollution: Social Issues and the Environment • Water conservation, rain water harvesting, • Climate change, global warming, acid rain, ozone layer depletion,

• Environment Protection Movements in India – Chipko movements, Silent Valley movements, Public awareness

Human Population and the Environment: Definition, characteristics; human Population growth, concept of carrying capacity, Population explosion – Family Welfare Program.

(Lecture 08)

Text Books:

1. Dr. D.L. Manjunath, Environmental Studies, Pearson Education, 2006
2. Joseph Benny, Environmental Studies, Tata McGraw Hill, 2005
3. Bharucha Erach, the Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad
4. R. Rajagopalan, Environmental Studies, Oxford Publication, 2005

Reference Books:

1. Textbook of Environment & Ecology, Deeksha Dave and S.S. Katewa, Cengage Learning India Pvt. Ltd.,Patparganj, Delhi, 2009
2. Environmental Science & Engineering, Meenakshi, Prentice Hall India
3. Principles of Environmental Science, Cunningham W.P. & Cunningham M.A., Tata McGraw Hill Publishing Co. Ltd., New Delhi*Latest editions of all the suggested books are recommended.

Fundamentals of Animation and Basic Sketching

Course Code: BSA-104 **L-4, T-2, P-0, C-5**

Unit I

What is animation, History of animation, concept of animation and persistence of vision, Introduction to Experimental animation, Orientation into visual art form, Orientation into performing art form, Relevance of message and medium and a relationship,

(Lecture 08)

Unit II

The Basics of traditional 2D animation, Intro to the skill required the animators, Learning to draw lines, circles, ovals, scribbles, jig jag (random) patterns etc. Beginning life drawing, use of simple shapes. How to draw drawings with the help of basic shapes

(Lecture 08)

Unit III

An intro on how to make drawings for animation, shapes and forms, About 2D and 3D drawings, Life drawing, Caricaturing-fundamentals, Exaggeration, Silhouette.

(Lecture 08)

Unit IV

Background elements, trees, mountains, clouds, water bodies, meadows, buildings, scince fiction story backgrounds, backgrounds of mythological stories perspective drawing
Lights and shadows day night scenes,

(Lecture 08)

UNIT V

Perspective drawing Lights and shadows day night scenes, Concept of layers, Back ground, stage, foreground elements, Layout designs,

(Lecture 08)

Text Books:

1-Experimental animation: an illustrated anthology Robert russett and Cecile Starr.

2-The Everything Drawing Book: From Basic Shapes To People and Animals by Helen south

Reference Books:

1. Visual art: a critical introduction by James Morton Carpenter (Harcourt Brace Jovanovich publishers)
2. Making Clay Animation by Nancy Smith, Melinda Kolk.
3. Clay Modeling by Sally Henry (Rosen Publishing Group)
4. Optical Illusion Flip-Book: Astounding Optical Illusions by Gyles Brandreth, Katherine Joyce (sterling publisher)

PROFESSIONAL COMMUNICATION & PRESENTATION SKILLS – I

Course code: BCA/IDD105 /BSA105 **L-2, T-0, P-0, C-2**

Course Contents

Unit - I

Functional Grammar: Patterns & Parts of speech Subject, Predicate, Noun, Pronoun, Adjective, Adverb, Verb, Verb phrases, Conjunction, Interjection.

(Lecture 08)

Unit - II

Vocabulary: Word formation, Prefix, Suffix, Compound words, Conversion, Synonyms, Antonyms, Homophones and Homonyms, How to look up a dictionary.

(Lecture 08)

Unit - III

Communication: Meaning & importance of communication, Barriers to effective communication, Channels of communication, Language as a tool of communication.

(Lecture 08)

Unit - IV

Expression: Speaking Skill- Prepared speech on set topic ,Extempore speech. Reading skill- Comprehension Test. Préci Writing. Writing skill- Technical/Business Letters, Technical Report

(Lecture 08)

Text Books:

1. Monippally , Matthukutty - Business Communication: From Principles To Practice-Tata Mc Graw Hill Education,2013.
2. *Hewings, Martin - Advanced Grammar-Cambridge University Press, 2012.*

Reference Books:

1. Raman Meenakshi & Sharma Sangeeta, Technical Communication-Principles & Practice – O.U.P. New Delhi. 2007.
2. Mohan Krishna & Banerji Meera, Developing Communication Skills – Macmillan India Ltd. Delhi.
3. Mosam Sinha, English Communication Skills- Pointer Publication, Jaipur,2012

MS- Office & Internet (LAB)

BSA 153

L-0, T-0, P-6, C-3

Course Contents

• Introduction to Windows, Note pad, Paint brush, Word Pad, calculator.
• Starting MS WORD 2007, Creating and formatting a document, Changing fonts style and size, Table Creation and operations, Autocorrect, Auto text, spell Check, Inserting objects, Page setup, Page Preview, Printing a document, Mail Merge.
• Starting MS – Excel 2007, Work sheet, cell inserting Data into Rows/ Columns, Alignment, Text wrapping, Sorting data, Auto Sum, Use of functions, referencing formula cells in other formulae, Naming cells, Generating graphs, Worksheet data and charts with Excel, Creating Hyperlink, Page set up, Print Preview, Printing Worksheets.
• Starting MS – Power Point 2007, Creating a presentation using auto content Wizard, Blank Presentation, creating, saving and printing a presentation, Adding a slide to presentation, Navigating through a presentation, slide sorter, slide show, editing slides, Using Clipart, Word art gallery, Adding Transition and Animation effects, setting timings for slide show.
• Starting MS – Access 2007 – Creating tables, queries, forms, reports, pages, macro, module.

Evaluation scheme:

Evaluation scheme:

<table>
<tr><td colspan="2">PRACTICAL PERFORMANCE
&
VIVA DURING THE SEMESTER

(25 MARKS)</td><td rowspan="2">ATTENDANCE
(5 MARKS)</td><td rowspan="2">EXCERCISE
(10MARKS)</td><td rowspan="2">VIVA
(10MARKS)</td><td rowspan="2">TOTAL INTERNAL
(50MARKS)</td></tr>
<tr><td>LAB ASSIGNMENT
(15 MARKS)</td><td>FILE WORK
(10 Marks)</td></tr>
</table>

External Evaluation (50 marks)
The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Illustrator & CorelDraw (LAB)

BSA 154

L-0, T-0, P-6, C-3

Course Contents

- Draw a 5 basic object using the basic shapes.
- Create a business card for graphic design company using the shapes and text.
- Create a magazine cover page.
- Create a CD front and back cover design for a music company.
- Draw simple line object with the help of shape tools in Adobe Illustrator.
- Create a scene of jungle with lines, shapes and object and pen tool.
- Apply colour and gradient to above scene.
- Import a drawing, trace it and apply colour filter and effect and export to various image formats.
- Some advertisement for products, posters of social importance.

Evaluation scheme:

Evaluation scheme:

<table>
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&
VIVA DURING THE SEMESTER

(25 MARKS)</td><td rowspan="2">ATTENDANCE
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External Evaluation (50 marks)

The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Semester II
ANATOMY DRAWING

Course Code: BSA-201 **L-4, T-2, P-0, C-5**

Unit I

MAN ANATOMY: Structure of man, proportion of body parts, drawing from basic form, Line of action, balance Rythm, turnings, twisting drawing plane surfaces, torso, face,eyes, nose, ears, mouth, hand and feet.

(Lecture 08)

Unit II

FEMALE ANATOMY: Proportion and construction of female body, twisting of female body, chest, torso, face, parts of face, hands, hands in action, feet and gestures, curves, curls rythm and twist

(Lecture 08)

Unit III

CHILD ANATOMY: Understanding child's figure, proportion and construction of child body, face, chubbiness, hand, feet and gestures.

(Lecture 08)

Unit IV

ANIMAL ANATOMY: Animals from basic forms, understanding motion and grace of animals, turning animals to character, face, legs, tails, perspectives.

(Lecture 08)

Unit V

CARTOON ANATOMY: Understanding cartoon characters, drawing from basic shapes, line of action, distortion of proportion, cartoon faces, eyes, mouths, hairs, nose, hands, feet, gestures and poses.

(Lecture 08)

Text books-Human anatomy by-Victor Ferard
Figure drawing made easy by-Aditya Chari

Principles of Animation

Course Code: BSA-202 **L-3, T-2, P-0, C-4**

Unit I

Human, animals and cartoons in perspective, Quick studies from real life.Quick sketches Line of action. Poses and gestures. **(Lecture 08)**

Unit II

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. **(Lecture 08)**

Unit III

Intro to animation production process. Developing Idea, story, script, visualization, character design, layout design, key frames and in-betweens, Preproduction, production and post production **(Lecture 08)**

Unit IV

Caricaturing the Action. Thumbnails,Drama and psychological effect. Motion studies, drawing for motion. The body language,Re-defining the drawings. **(Lecture 08)**

Unit V

Clay animation, Flip Books. Stop motion techniques. Animation set designing (Table top).Clay character modelling. Table top Model lighting, Technique of working in groups, Introduction to the equipment, the animators drawing tools, "The animation table (light box), line tests, The Exposure sheet(X sheet)". **(Lecture 08)**

Text Books:

1. Animators Survival Kit by RICHARD WILLIAMS (Faber & Faber).
2. The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White.
3.Stop Motion: Craft Skills for Model Animation by Susannah Shaw (Focal Press)
4.The ADVANCED Art of Stop-Motion Animation by Ken A. Priebe(Course Technology)
5.From pencil to pixel by Tony White
6.Animation process by Persten Blair.

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Graphic Design

Course Code: BSA-203 **L-4, T-2, P-0, C-5**

Unit I

Photoshop and its interface, Navigation and All tools, Working with basic selections, advanced selections-1(on the basis of channels, color range, extract, filter etc), Exercises on selections, Quick Masks, Layer Mask, Vector Mask, Layers & Layer Blending Modes.Play with Photoshop filters-mart Filters, Filter Gallery, exercises, Bring some object and try to make it in computer, Make your own cartoon character. **(Lectures 8)**

Unit II

Color Theory, Make a perfect cropping of some images using Photoshop, Prepare a cutout of some images using Photoshop, Place nice background for those images, Prepare nice background using gradient tool, Scan various images, Color adjustment of those images (PHOTO RETOUCHING)

(Lectures 8)

Unit III

Make Nature scene (winter) digital painting, Make Nature scene (summer) digital painting.Make digital painting (Use brush, pencil, smudge etc), Make something like modern art keeping in mind color combination, Make a collage of Indian art and culture.Make a collage of wildlife animals, Make a portrait of celebrity (Digital painting) **(Lectures 8)**

Unit IV

Convert a B&W image into color (Use variation), "Choose a theme (Music, Festivals, Sports, Dance) and Design 5-8 graphics on them.", Color Modes, Color Corrections, Advanced color correction techniques (levels, Curves, Hue, Saturation etc), Design that Ad from your own style.

(Lectures 8)

Unit V

Design motifs tribe art, Make an animal character, "Plan a story of that character & Make its backgrounds in three/four frames", Make posters on nature/earth, Matte Painting-Composition,Creating images for the web: Exporting images from Photoshop. **(Lectures 8)**

Text Books:

1. Adobe Photoshop CS5 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.

References:

1. Teach Yourself Visually - Adobe Photoshop CS5 by Mike Wooldridge (Wiley publishing).
2. Adobe Photoshop CS5 Bible by steve Johnson.
3. Adobe Photoshop CS5 Bible by Lisa Danae Dayley & Brad Dayley.

Animation Techniques

Course Code: BSA-204 **L-3, T-2, P-0, C-4**

Unit I

Key framing and inbetweening, cleanups. Straight forward and frame by frame animation, cutout animation technique. **(Lectures 8)**

Unit II

Special effects (smokes, fire, rainfall, cloth simulation, snow, water ripples, waves, mass and weight, force slow and fast movements.

(Lectures 8)

Unit III

Line of action, path of action, walk cycle of animal and human. **(Lectures 8)**

Unit IV

Acting for animation facial expressions Communication by body language and gesture. Communication by voice. **(Lectures 8)**

Unit V

Clay animation, Flip Books. Stop motion techniques. Animation set designing (Table top).Clay character modelling. Table top Model lighting, Technique of working in groups, Introduction to the equipment, the animators drawing tools, "The animation table (light box, Field chart, line tests, The Exposure sheet(X sheet)" **(Lecture 08)**

Text Books:

1. Animators Survival Kit by RICHARD WILLIAMS (Faber & Faber).
2. The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White.
3. Art in motion: Animation Aesthetics by Maureen Furniss.
4.Acting for Animation: Ed Hooks

References:

1. Cartoon Animation (The Collector's Series) by Preston Blair.
2. Animation from Pencils to Pixels: Classical Technique by Tony White

PROFESSIONAL COMMUNICATION & PRESENTATION SKILLS - II

Course code: BCA/IDD205/BSA105 **L-2, T-0, P-0, C-2**

Objective: The objective of the syllabus is to prepare students on advance English grammar skills to make them write correct English.

Course Contents:

Unit - I

Functional Grammar: Articles, Preposition, Tenses: Functions, Synthesis, Transformation, Spotting errors and correction of sentences. **(Lecture 08)**

Unit - II

Pre- Requisites of Technical written Communication: One word substitution, Spelling rules, Words often confused & misused, Phrases. **(Lecture 08)**

Unit - III

The Structure of sentences/ clauses: Adverb clause, Adjective clause, Noun clause. Sentences: Simple, Double, Multiple and complex, Transformation of sentences: simple to complex & vice versa, simple to compound & vice-versa, Interrogative to assertive, assertive to negative & vice-versa. **(Lecture 08)**

Unit - IV

Technical Communication: Nature, Origin and Development, Salient features, Scope & Significance, Forms of Technical Communication, Difference between Technical communication & General writing, Objective Style vs. Literary Composition. (**Lecture 08)**

Text-Books:

1. *Murphy, Raymond- English Grammar- Cambridge University Press, 2012*
2. Raman Meenakshi & Sharma Sangeeta, Technical Communication-Principles & Practice O.U.P. New Delhi. 2007.
3. Mitra Barum K., Effective Technical Communication – O.U.P. New Delhi. 2006.
4. Better Your English- A Workbook for 1st year Students- Macmillan India, New Delhi.

Reference Books:

1. Horn A.S., Guide to Patterns & Usage in English – O.U.P. New Delhi.
2. Mohan Krishna & Banerji Meera, Developing Communication Skills – Macmillan India Ltd., Delhi.

Animation Principles (LAB)

BSA 251

L-0, T-0, P-6,C-3

Walk cycles of Biped (human.)
Walk cycles of Quadruped (animal)
Animation exercises on following principles:
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.

Evaluation scheme:

Evaluation scheme:

<table>
<tr><td colspan="2">PRACTICAL PERFORMANCE
&
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(25 MARKS)</td><td rowspan="2">ATTENDANCE
(5 MARKS)</td><td rowspan="2">EXCERCISE
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(50MARKS)</td></tr>
<tr><td>LAB ASSIGNMENT
(15 MARKS)</td><td>FILE WORK
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</table>

External Evaluation (50 marks)
The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Adobe Photoshop (LAB)

BSA 252

L-0, T-0, P-6, C-3

Design a logo, brochure, covering letter, visiting cards.
Convert a B&W image into color.
Prepare a cutout of some images using Photoshop.
Place nice background for those images.
Prepare nice background using gradient tool.
Design Ad, movie poster.
Photo retouching.
Make a portrait of celebrity (Digital painting).

Evaluation scheme:

Evaluation scheme:

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External Evaluation (50 marks)
The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Semester III
Elements of Preproduction

Course Code: BSA-301 **L-4, T-2, P-0, C-5**

Unit I

Perspective in animation, Perspective in 1 point, 2 point, 3 point, multiple points perspective, Curves and cylinders in perspective, Blocks and boxes, Vanishing point in horizon, outside horizon and indoors. Scale diagrams in perspective, Different viewpoints, importance of eye level,

(Lectures 8)

Unit II

Objects in perspective, Human forms in perspective. Cast shadow exercise, Shapes in perspective with light and shade, Foreshortening, Foreshortening of cylinders, Storyboarding: shot breakdowns. **(Lectures 8)**

Unit III

Character designing, characteristics of a character, props, kind of characters, assets of character, creating a model chart for a character, importance of model chart **(Lectures 8)**

Unit IV

Introductions to cameras, camera angles, Kinds of shots, Camera angles, movement of the camera, vertical panning, horizontal panning, Tilts, Truck in and Truck outs, dolly camera, SLR camera, Automatic camera, digital and analog cameras, photography and videography.

(Lecture8)

Unit V

Visual continuity, Creating storyboard for the story with film grammar principles. Timing the story board. Analyze storyboard of a film, Working with a storyboard, Student project-Story boarding.

(Lectures 8)

Text Books:

1. How to Draw Comics the Marvel way by Stan Lee.
2. Art of drawing Human Body (Sterling).
3. Art of Animal study (Ken Hultgren).
4. Animal Anatomy for Artist (Eliot Gold finger).
5. Successful Drawing (Andrew Loomis).
6. The art of layout and storyboarding by Mark t byrne.
7. Setting Up Your Shots: Great Camera Moves Every Filmmaker Should Know by Jeremy Vineyard (Michael Wiese Productions).

2D DigitalAnimation: Flash

Course Code: BSA-302 **L-4, T-2, P-0, C-5**

Unit I

Flash workflow & Workspace, Intro to flash, Workspace overview, Customize the workshop
Using the stage and tools panel, About the timeline, Using Flash panels, Property inspector
Library panel, Movie explorer, History panel, Color panel, Working with Flash documents: About flash files, Create or open a document and set its properties, View a document when multiple documents are open. Working with project, importing art work into flash (working with PSD files-PSD file import preferences)" **(Lectures 8)**

Unit II

Adding media to library, Work with libraries and its items, working with timeline, working with scenes, Find and replace command, about templates, Drawing Basics: About vector and bitmap graphics, Flash drawing module, about overlapping shapes, Using flash drawing and painting tools: Draw with pencil tools, draw straight lines, Reshaping lines and shape outlines, snapping (object snapping, pixel snapping and snap alignment, working with color, strokes and fills.

(Lectures 8)

Unit III

Working with graphic objects: Selection objects, moving, copying and deleting objects, Arranging objects (Stack, Align, group, Break apart groups and objects) and Transforming object, Using symbols, instances and library assets: Symbols overview, Types of symbols, Create symbols, Convent animation on the stage into a movie clip, Duplicate symbols, Edit symbols, working with symbol instances.

(Lectures 8)

Unit IV

Creating animation: Animation basics, creating motion, creating key frames, Representations of animation in the timeline, Frame rates, Frame by frame animation, Onion skinning, Extend still images, Mask layers. **(Lectures 8)**

Unit V

USING timeline effects, Twinned Animation, Special effects, Filter: Animation filters, Create preset filter libraries, Blend modes in Flash, Working with text, working with Sound, Working with video.

(Lectures 8)

Text Books:

1. Adobe Flash Professional CS5 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
2. Flash + after effects by Chris Jackson (Focal press publication).

References :

1. Flash character animation: applied studio techniques By Lee Purcell (Sams publishing).
2. Adobe Flash Catalyst CS5 Classroom in a Book (Author: Adobe Creative Team).

Advanced Animation Principles

Course Code: BSA-303 **L-3, T-2, P-0, C-4**

Unit I

Timing for inanimate objects, Rotating objects, Spacing of drawings.(Genera1 Remarks) Spacing of drawings, Timing a slow action, Timing a fast action. **(Lectures 8)**

Unit II

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. **(Lectures 8)**

Unit III

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. **(Lectures 8)**

Unit IV

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. **(Lectures 8)**

Unit V

SUBPOINTS, Phrasing, Picture and sound sync, Accents, Attitude, The secret, Animation with soundtrack, The sound track, Dialogue and voice over. **(Lectures 8)**

Text Books:

1. Animators Survival Kit by RICHARD WILLIAMS (Faber & Faber).
2. The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White.
3. Art in motion: Animation Aesthetics by Maureen Furniss.

References:

1. Character Animation Crash Course! By Eric Goldberg.
2. Cartoon Animation (The Collector's Series) by Preston Blair.
3. Animation from Pencils to Pixels: Classical Technique by Tony White.

Audio & Video-Editing: Tools & technology

Course Code: BSA-304 **L-3, T-2, P-0, C-4**

Unit I

Manipulating audio: Auto trim/crop, mute, DC offset, resample, reverse, smooth/enhance, Fade in/out, insert silence, bit depth converter etc, Understanding various digital audio formats like .WAV, .AIFF, .MP3, .swf, .WMA etc, Understand audio plug-in, importing and exporting into multiple audio file formats like MP3, real audio, QuickTime formats, etc.

Event tool: move, split, slip and trim multiple events, create fades, apply ASR attack/sustain/release), etc. **(Lectures 8)**

Unit II

Spectrum analysis tools, scrub tool etc, statistics tool (Max, RMS, DC offset, zero crossings), sampler tool etc, Audio editing: workflow, real time editing, event based editing, waveform volume and pan envelopes, Edit, record, encode and master digital audio, editing audio by drag and drop options, cross fading audio tracks, balancing sound levels, creating smooth fades etc.

(Lectures 8)

Unit III

Understanding Multichannel audio recording, synchronize audio and video. Understanding regions and play lists, editing of fields, name markers, loops, and regions,:, Time and frames.

Audio effects like: EQ, Volume, chorus, distortion, Delay/echo, pitch, bend/shift, reverb, vibrato, normalize etc Insert track markers, adding multiple tracks, adjusting track time, musical instrument file processing **(Lectures 8)**

Unit IV

Adobe Premiere: Concept of non linear editing, The basics of editing: Overview, Importing and Exporting: various audio, video and graphics in various formats, Edit, manipulate and arrange these elements in visual timeline, understand all Tools on toolbox for editing clips.

Titling and superimposing **(Lectures 8)**

Unit V

Panels: Tools panel, Project, Monitors: Source and program, Timeline, Audio meters, Misc.

Tasks and functions: Titles, Transitions, speed and duration, Effects, Key frames, Types of edit, Opacity, trimming,

Adding Special effects like: Star trek transporter effect, Blur part of an image, Ghost effect, Highlight part of an image etc. **(Lectures 8)**

Text Books:

1. The Sound Effects Bible: How to Create and Record Hollywood Style Sound Effects. Author: Ric Viers (Michael Wiese Productions).
2. Adobe Premiere Pro CS5 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.

Reference:

1. Film Editing: Great Cuts Every Filmmaker and Movie Lover Must. Know Author: Gael Chandler (Michael Wiese Productions).

STORY TELLING

Course Code: BSA-305 **L-2, T-0, P-0, C-2**

Unit I

CONCEPT DESIGN: Focus area foundation, developing concept, cartoon animation writing and storytelling

(Lecture 08)

Unit II

Sources of story line, adaption, structure of story, writing the story line from classical animation.

(Lecture 08)

Unit III

STORY BOARD: Importance of story board, definition, advantage, different types of story boards, paper storyboard and screen storyboard.

(Lecture 08)

Unit IV

Elements of storyboard, types of storyboards: Linear story board, non-linear storyboard, Hierarchical storyboard, graphical storyboard and hand drawn story board.

(Lecture 08)

Unit V

Storyboarding movements, storyboarding without sketching, multimedia development process, create a storyboard and finally prepare an animatic.

(Lecture 08)

NOTE- Student will submit 5 stories for short animation create basic script and storyboard, student will be awarded 25 marks for the same by a panel of internal examiners.

Text Books-

1. The Complete Book of Scriptwriting By-J. Michael Straszynski
2. Film Scriptwriting-A practical Mannual By-Dwhite V. Swain and Joye R. Swain
3. Screenplay: Foundation of Screenwriting By-Syd Field

Adobe Flash (Mini Project) (LAB)

BSA 351 **L-0, T-0, P-6, C-3**

Animation exercises on following principles:
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.
Walk cycles of Biped (human), Walk cycles of Quadruped (animal).
Mini project on 2d animation with flash.

Evaluation scheme:

Evaluation scheme:

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External Evaluation (50 marks)
The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Sound Forge & Adobe premiere (LAB)

BSA -352

L-0, T-0, P-6, C-3

- Working with multi track projects.
- Cleanup audio.
- Create a loop of sound.
- Applying sound effects.
- Making a mesh up by using various clips.
- Adding old movie sound/audio to new movie visuals and vice versa.
- Making movie trailer by footage.
- Creating titles in premiere.
- Creating credits of the movie.

Evaluation scheme:

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External Evaluation (50 marks)

The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Semester IV
3D MAX MODELLING

Course Code: BSA-401 **L-4, T-2, P-0, C-5**

Unit I

Interface of 3DS max, Understanding the concept of four view ports, Aligning object in the each view port in X, Y, Z axis, Hot keys, User defined hot keys, Using the menus, Floating and docking. Command panel, customizing the interface.

(Lectures 8)

Unit II

Using drag and drop feature, Introduction to different workspaces, "Geometry, Sub objects, Extruding, Welding, bridging etc, Recognizing the workspaces".Introduction to standard and extended primitives.

(Lectures 8)

Unit III

"Introduction to creating complex objects with Standard and extended primitives. Understanding the spline tools. 2D tool in 3d Max. Introduction to polytools, Modeling with Editable poly.

(Lectures 8)

Unit IV

Creating 3D objects from 2D spline shapes, Organic and inorganic modelling, Using modifier stack, navigating the modifier stack, File navigation, Introduction to Connection (Hierarchy, Group, and Link)."

(Lectures 8)

Unit V

Introduction to modifiers and modifier gizmos, Familiarity with Modifiers like Bend, edit poly, X form, wave, lathe, symmetry, normal, shell, FFD (box), Mesh smooth, edit normals, edit path ,etc.

(Lectures 8)

Text Books :

1. 3ds Max 2010 Bible by Kelly Murdock (John Wiley & Sons).
2. 3ds max a step by step approach by kurt wendt.
3. 3ds Max 2009 Architectural Visualization - Intermediate to Advanced by Brian L .Smith.

ADVANCED MODELLING
WITH Z-BRUSH

Course Code: BSA-404 **L-4, T-2, P-0, C-5**

Unit I

ZBrush 4 features, system requirement, ZBrush 4 concept, working with ZBrush 4, working with the canvas, working with layouts, working with layouts, working with palettes, ZBrush configuration, using startup documents, tray modes, working with ZScript palette and working with the preference palette,.

(Lecture 08)

Unit II

Types of tools in ZBrush 4, modes, options and related palettes, explaining the tool palate te, working with tools, working with pixel based tools, working with gyro tool, Autodesk Maya and Autodesk 3ds max settings, Introduction to GoZ, introduction to curves, the alpha adjust curve, the edit curve, the smoothing curve, the diffuse curve, the specular curve, the trans curve, the reflect curve, the noise curve and the intensity curve.

(Lectures 8)

Unit III

Strokes, lighting, shadows, transformation, working with alphas, texture concepts, texture inventory, understanding the texture palette, texture mapping, seamless textures, spot light texturing, painting textures and materials. Imm-plug ins.

(Lectures 8)

Unit IV

Creases mesh visibility, morph target, multi-resolution modelling, edge loop, different maps, explain projection master, working with ZSpheres, understanding adaptive skinning and understanding unified skinning.

(Lectures 8)

Unit V

Sculpting, sculpting brushes, using stencils, sculpting using projection master, understanding and render palette and posing characters.

(Lectures 8)

Text Books:

1. Introducing Z Brush by-Eric Keller
2. Digital Sculpting Human anatomy By-Scott Spencer

SCRIPT WRITING

Course Code: BSA-405 **L-2, T-0, P-0, C-2**

Unit I

Story, elements of story, expansion, dialogues interaction through dialogue, script and its elements, theme, genre of script.

(Lecture 08)

Unit II

Script writing for cartoon movies and its storyboard.

(Lecture 08)

Unit III

Script for dramatic and emotional story and its storyboard

(Lecture 08)

Unit IV

Script writing for comedy movie and its storyboard.

(Lecture 08)

Unit V

Script for mythological movie and its story board.

(Lecture 08)

NOTE- Student will submit 5 stories for short animation create digital scripts, storyboard, student will be awarded 25 marks by a panel of internal examiners.

Text Books-

1. The Complete Book of Scriptwriting By-J. Michael Straszynski
2. Film Scriptwriting-A practical Mannual By-Dwhite V. Swain and Joye R. Swain
3. Screenplay: Foundation of Screenwriting By-Syd Field

Animation in 3D Max

Course Code: BSA-406 **L-4, T-2, P-0, C-5**

Unit I

Advanced 3DS Max, Modelling objects with lattice, loft, extrude etc, Introduction to texturing. Working with Diffuse, Opacity and Reflection, Basics of UV unwrapping, Creating texture maps. Bump and Displacement Mapping, advanced Texturing with 3D max.

(Lectures 8)

Unit II

Introduction to rendering, scanline render, mental ray render, introduction to occlusions render, environment panel, fire environment panel, volume fog environment panel, file output and rendering effect, automatic exposure control.

Unit III

Introduction to lights, properties of lights, standard light, photometric light. Working with omni, spot, target, free light, light include and exclude tool, light lister. Introduction to the 3d elevators and walk through. Introduction to camera, types of camera, target camera and free camera. Common camera parameters, using transforms to aim a camera.

(Lectures 8)

Unit IV

Introduction to Bones & IK-FK, Introduction to Biped Rig (Setting up the Skeleton), Understanding Biped, Creating a Biped, Understanding Biped Anatomy, Changing Initial Biped Anatomy, Posing the Biped, Introduction to Biped Rig-2 (Creating Controls and Finishing the Rig), Binding rig with mesh.

(Lectures 8)

Unit V

Basic Key frame Animation, using auto key mode, using set key mode, controlling timing, setting time segments, frame rate, animation constraint Introduction to Particle System. Working with PF source, Spary , Snow, Super Spary, Bomb, PBomb, etc. Intro to character animation, Animating camera and lights.

(Lectures 8)

Text Books:

1. 3ds Max 2010 Bible by Kelly Murdock (John Wiley & Sons).
2. 3ds max a step by step approach by kurt wendt.
3. 3ds Max 2009 Architectural Visualization - Intermediate to Advanced by Brian L .Smith.

Autodesk 3D Max (LAB)

BSA 451

L-0, T-0, P-6, C-3

- Modeling objects by using loft/lathe/extrude etc.
- Creating or animating objects by using deformers.
- Creating various textures by using material editor.
- Creating text animation.
- Creating camera animation.
- Creating an effect of snow or rain or smoke or water.
- Creating wave effect/ripple or adding gravity to text.
- Creating an effect of bomb/explosion.

Evaluation scheme:

Evaluation scheme:

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External Evaluation (50 marks)
The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Z-Brush (LAB)

BSA 453

L-0, T-0, P-6,C-3

- Polygon modeling, Nurbs modeling.
- Modeling Props and sets (Locations).
- Modeling a high poly model.
- Modelling with Z-brush
- Z-brush with Max and other 3d softwares
- Import an .obj file and add fine detailing, export its projection map.

Evaluation scheme:

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External Evaluation (50 marks)

The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

MINI PROJECT (LAB)

BSA 454

L-0, T-0, P-4, C-2

Make an architectural walkthrough with 3D Max. Student will be given an architectural site plan to develop a n animated walkthrough. Student will gather all information required to create a photorealistic camera animation of given site plan or map or floor plan. Student may also choose any area or street or building for creating a walkthrough animation.

The project will be evaluated internally as well as externally. A panel of internal examiners will evaluate the project as per following scheme-

Evaluation scheme:

SITE PLAN (10 MARKS)	CLOSENESS WITH SITE PLAN (5 MARKS)	DEADLINE AND SCHEDULE (5MARKS)	KNOWLEDGE OF SOFT WARES USED (10MARKS)	FINAL OUTPUT (20MARKS)	TOTAL INTERNAL (50)

External Evaluation (50 marks)

The external evaluation would also be done by the external Examiner based on the experiment Conducted during the examination.

EXPERIMENT (10 MARKS)	FINAL OUT PUT (25 MARKS)	VIVA (15 MARKS)	TOTAL EXTERNAL (50 MARKS)

Semester V

MAYA FUNDAMENTALS

Course Code: BSA-505 **L-4, T-2, P-0, C-5**

Unit I
Introduction to the interface of Maya, Menu bar, Tool bar, Hot box, Using the shelf, hot keys. Using the spacebar, manipulating a view. Creating objects: Simple primitives, Lights, cameras.
(Lectures 8)

Unit II
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. **(Lectures 8)**

Unit III
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. **(Lectures 8)**

Unit IV
Introduction to Polygon modelling, Nurbs modelling, Modelling Props and sets (Locations), Modeling a high poly model, Technical issues related to managing high poly model.
(Lectures 8)

Unit V
Managing the display of huge sets and models in the view port. Modeling the character using templates & view port references, "Optimizing the final model, refining the mesh, basic posture, Testing the model", Difference between hi-poly & low-poly characters.
(Lectures 8)

Text Books:
1. Mastering Autodesk Maya 2011 by Eric Keller.
2. Introducing Maya 2011 by dariush derakhshani.

3D Texturing, Rigging & Muscle systems

Course Code: BSA-506 **L-4, T-2, P-0, C-5**

Unit I
Introduction to basic material types & Procedurals. Study of concepts: Opacity, Smoothness, Specularity, and color, Working with Maya Surface Nodes-Blinn, Phong & Lambert, Working with Transparency, Reflection & Refraction, Bump & Displacement Maps, Introduction to unwrapping, Unwrapping the maps for various 3d characters. **(Lectures 8)**

Unit II
Working With 2D and 3D Texture, Introduction to the mapping and advanced texturing techniques, Shadow maps, ray traced shadows and radiosity, Creating photo real environments and textures, Basics of Utilities-Reverse, Stencil, Basics of Utilities-Condition, Sampler Info.
(Lectures 8)

Unit III
Introduction to bone system/Joints and IK handles, Creating bone system and maintaining naming conventions, Skinning: types,import and export of skin weights, IK and FK basics,IK and FK switch,stretchy IK and FK, Introduction to Deformers: attice, wrap,cluster, iggle,wire etc. Use of deformers in rigging process, **(Lectures 8)**

Unit IV
Introduction to constrains and implementation to rig. Maintaining proper hierarchy,grouping and creating controls, Rigging the characters, Introduction to Muscle system, Working with Muscle rig, Introduction to automated rigging systems and methods. **(Lectures 8)**

Unit V
"Embedding small scripts in the hierarchy control system, to save time and facilitate handling", Advanced rigging.Vertex weighting techniques, Rigging solutions to Anatomical Problems, Using advanced rigs to archive natural articulation of character. **(Lectures 8)**

Text Books:

1. An Essential Introduction to Maya Character Rigging by Cheryl Cabrera (Focal press).
2. Advanced Maya Texturing and Lighting By Lee Lanier (John Wiley and Sons).
3. CG Toolkit's The Art Of Rigging: Volume I, II, III (Leon.)

Maya Dynamics and n-Dynamics

Course Code: BSA-507 **L-4, T-2, P-0, C-5**

Unit I

Introduction to nCloth, Use of mesh as nCloth, Optimizing geometry for nCloth, Setting nCloth collisions and constrains, ncloth and external dynamic forces. Various ncloth simulations, ncloth caches creating and editing, nCloth caches attributes Optimizing ncloth, Various nCloth examples like zipper, bag of balloon, shirt etc. **(Lectures 8)**

Unit II

. Intro to Hair, Hair styling, Painting and setting positions for hair follicles, Assigning hair system, Making collisions and use of constrains. **(Lectures 8)**

Unit III

Introduction to Fur system in maya, assigning fur, defining various fur attributes like fur maps, reversing normals etc. Shadow and render settings of fur. **(Lectures 8)**

Unit IV

Introduction to nParticles and particles in maya, different kind of emitters, particles attribute, collision of particles with other objects, various fields, particle shapes and dynamic, particle instance, particle collision event editor, effects. **(Lectures 8)**

Unit V

Soft and rigid bodies, active and passive rigid bodies, dynamic attributes of soft and rigid bodies, pin constraint, hinge constraint, spring constraint, paint soft body weight tool.

(Lectures 8)

Text Books:

1- Mastering Autodesk Maya 2011 by Eric Keller.

2-Introducing Maya 2011 by Dariush Derakhshani.

3D ANIMATION BASICS

Course Code: BSA-508 **L-4, T-2, P-0, C-5**

Unit I
Brief about animation principles, Animation tools in 3D, "Applying classical 2D animation techniques i.e; Stretch squash for 3D character". **(Lectures 8)**

Unit II
Creating the illusion of weight, Overview of maya's playback controls, exploring maya's animation preferences. **(Lectures 8)**

Unit III
Details about graph editor, Bouncing Ball Exercise, Animating object along a motion path, Utilizing the trax editor to blend animation clips. **(Lectures 8)**

Unit IV
Controlling attributes with set driven keys, Animating with constraints, Previewing animations in real-time with play blasts. **(Lectures 8)**

Unit V
Introduction to scene animation and key framing, About dope sheet. **(Lectures 8)**

Text Books:

1. Character animation in 3D: By Steve Roberts (Focal press)
2. Character animation in depth (Creative professionals press) Author: Doug Kelly.
3. The Human Figure in Motion by Eadweard Muybridge.

Autodesk MAYA (LAB)

BSA 551

L-0, T-0, P-6, C-3

- Create male and female models.
- Apply texture on above models.
- Create rig for both models.
- Create a 4 leg character and apply texture on it.
- Create a natural outdoor or indoor scene.
- Mechanical rig, Vehicle rig
- Rigging various props
- Creating basic material and shader types & Procedurals.
- Creating: Opacity, Smoothness, Secularity, and color maps, Transparency, Reflection & Refraction, and Bump & Displacement Maps. .
- Unwrapping the maps for various 3d characters, objects.

Evaluation scheme:

Evaluation scheme:

<table>
<tr><td colspan="2">PRACTICAL PERFORMANCE
&
VIVA DURING THE SEMESTER

(25 MARKS)</td><td rowspan="2">ATTENDANCE
(5 MARKS)</td><td rowspan="2">EXCERCISE
(10MARKS)</td><td rowspan="2">VIVA
(10MARKS)</td><td rowspan="2">TOTAL INTERNAL
(50MARKS)</td></tr>
<tr><td>LAB ASSIGNMENT
(15 MARKS)</td><td>FILE WORK
(10 Marks)</td></tr>
</table>

External Evaluation (50 marks)
The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

3D Animation (LAB)

BSA 554

L-0, T-0, P-6, C-3

- Create a hair system on male or female model
- Apply fur on a dog or cat model
- Create a scene with waterfall or fountain
- Apply active/passive soft and rigid bodies.
- |Create a scene of camp fire followed by rainfall/snowfall
- Create an animation of a nonlivingobject.

Evaluation scheme:

<table>
<tr><td colspan="2">PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)</td><td rowspan="2">ATTENDANCE (5 MARKS)</td><td rowspan="2">EXCERCISE (10 MARKS)</td><td rowspan="2">VIVA (10 MARKS)</td><td rowspan="2">TOTAL INTERNAL (50 MARKS)</td></tr>
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</table>

External Evaluation (50 marks)

The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Semester VI
Fundamentals of Game Technology

Course Code: BSA-601 **L-4, T-2, P-0, C-5**

Unit I
Introduction to game engine and its components, game assets. Over view of component interaction inside game engine.

(Lectures 8)

Unit II
Game theory, the process of game development and its management. Concept of machine, editing game engine footage.

(Lectures 8)

Unit III
Game testing: Internal testing - External testing. Game engine navigation, user interface. Menu bar& tool box. Introduction to level design, prop design & static elements of game art. Creating textures for the levels and making the level functional.

(Lectures 8)

Unit IV
Expanding the level by adding lights and objects. Understanding machinima, Capturing machinima to make short movie. Working with interactive elements, movers and triggers.

(Lectures 8)

Unit V
Advanced techniques emitters, sprits, importance of animatable models inside game engine.

(Lectures 8)

Text Books:
1. Artificial Intelligence for Computer Games: An Introduction (2004) by John D. Funge.
2. Programming Game AI by Example (2004) by Mat Buckland
3. AI Game Engine Programming (2004) by Brian Schwab
4. AI for Game Developers (2004) by David M. Bourg and Glenn Seeman

References:
1. AI Game Development: Synthetic Creatures with Learning and Reactive Behaviors (2003) by Alex Champandard. (See also the companion web site AiGameDev.com.)
2. AI Game Programming Wisdom 2 (2003) edited by Steve Rabin.

3D Character Animation, Lighting & Rendering

Course Code: BSA-603 **L-4, T-0, P-0, C-4**

Unit I

Producing natural articulation of realistic & semi-realistic, imaginary characters, Body language, attitude, character interaction, Animal walk& run cycles, snakes and birds.
Biped Character walk cycles, Biped Character run cycles, pushing and pulling objects.
Facial animation and lip-sync. Nonlinear Animation with trax editor. **(Lectures 8)**

Unit II

Working with character sets and clips, QUADRUPED Character Animation, Building a crowd from one animation, Character redirection, Character remapping, Using trax and clips with particle animations, Getting free stock motion capture files. **(Lectures 8)**

Unit III

Introduction to CG Lighting, Working with Maya Lights 1-Point, Direct, Spot, Working with Maya Lights 2-Ambient, Area and Volume, Direct Illumination-Creating and Illuminating a Stage Show, Three Point Lighting and Exterior Lighting, Cast shadows, decay rate, Previewing lighting and shadows **(Lectures 8)**

Unit IV

Creating depth map Shadow, creating ray traced shadows and radiosity, Concept of lighting system and shadows, Creating area light shadows, setting area light visibility, Creating soft shadows with spot lights, Indirect lighting: Setting illumination for interiors, Tuning global illumination, Global illumination photons **(Lectures 8)**

Unit V

Render layers: introduction, creating, splitting a scene into render layers, Applying render layer presets, setting overrides, creating render layer composites, Render Passes: Introduction, compare render passes and render layers, Render quality: anti aliasing, setting color profiles, diagnosing ray tracing, adjust motion blur. **(Lectures 8)**

Text Books:

1. Mastering Autodesk Maya 2011 by Eric Keller.
2. Mental Ray for Maya, 3ds Max, and XSI: A 3D Artist's Guide to Rendering by Boaz Livny (John Wiley & Sons).
3. Physically Based Rendering, 2nd Edition “From Theory to Implementation”: By Matt Pharr and Greg Humphreys Pharr.

Reference :

1. Character animation in depth (Creative professionals press) Author: Doug Kelly.
2. The Human Figure in Motion by Eadweard Muybridge.
3. Lighting for digital video & television By John Jackman (Focal press).
4. Advanced Maya Texturing and Lighting By Lee Lanier (John Wiley and Sons).

Digital Compositing

Course Code: BSA-604 **L-4, T-2, P-0, C-5**

Unit I

Concepts for Broadcast animation for logos, channel IDs and montages, Multi-layer compositing, Special effects, Super imposition and titling, Exporting various file formats outputs as per the end user requirements **(Lectures 8)**

Unit II

Introduction to batch render & work group, Adding cameras & lights to a simple scene to make a complex compositing, Adding 2D back ground and elements into a 3D character layers, Creating object, material IDs for further adding special effects.

Effects for digital video 2D layers and 3D layers for more effective outputs. Adding particle effects into a scene. **(Lectures 8)**

Unit III

Introduction to color character and keying, "Editing the real time video with CG based scene and merging both of them to create a final output, Exporting various file format output as per the end user requirements. **(Lectures 8)**

Unit IV

Introduction to the batch rendering 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 shot into a perfect output. **(Lectures 8)**

Unit V

Chroma keying, Luma key, Blue screen, Key frame text & layer animation & 3D particles, Effects etc. Color correction , Introduction to 3D compositing concepts i.e. Layers and masking, Rotoscoping, Rig removal, Morphing. **(Lectures 8)**

Text Books:

1. Creating motion graphics with after effects by Trish and Chris Meyer (Focal press).
2. Adobe after Effects CS5 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
3- After Effects Apprentice, Second Edition [Paperback]
Author: Chris and Trish Meyer (focal press.)

References:

1. After Effects Apprentice, Second Edition [Paperback] Author: Chris and Trish Meyer (focal press.)
2. The After Effects Illusionist: All the Effects in One Complete Guide by Chad Perkins (Focal press.)

3D Character Animations, Lighting & Rendering (Lab)

BSA 652

L-0, T-0, P-6, C-3

- Make different kinds of biped walk(Happy, Sad, Attitude and Tiptop)
- Create run, jump, skid animations. Stair up and stair down.
- Make animations of coin drop, ball bounce, path animation
- Make an animation of a character walking in street he pick up some object watch it and throw it.
- Render a photorealistic output of an interior scene.
- Render a natural scene show different time by varying lighting.
- Advance lighting using mental ray render.
- Animating day and night scene of a street.
- Using path animation and with help of materials and lighting create a scene of universe.

Evaluation scheme:

Evaluation scheme:

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External Evaluation (50 marks)
The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

Digital Compositing (LAB)

BSA 654

L-0, T-0, P-6, C-3

- Rotoscopy.
- Crowd duplication,
- Color correction,
- Keying. Green/blue screen shooting and compositing,
- Tracking and stabilizing.
- Bringing about CG elements in real video,
- Camera match moving,
- Title effects,
- Applying various effects.
- Wire and rig removals,

Evaluation scheme:

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External Evaluation (50 marks)

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EXPERIMENT (20 MARKS)	FILE WORK (10 MARKS)	VIVA (20 MARKS)	TOTAL EXTERNAL (50 MARKS)

BSA-653: Major Project (Lab)

Course Code: BSA-655 **L-0, T-0, P-8, C-4**

Course Contents

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, 3D or Gaming, 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.

The project prepared by student will be evaluated by an internal panel of examiners and external examiner on the basis of following criteria-

Evaluation scheme:

IDEA, STORY,SCRIPT AND ANIMATIC (10 MARKS)	CREATIVITY AND INNOVATIVENESS (5 MARKS)	CHARACTER AND LAYOUT (5MARKS)	KNOWLEDGE OF SOFT WARES USED (10MARKS)	FINAL OUTPUT (20MARKS)	TOTAL INTERNAL (50)

External Evaluation (50 marks)
The external evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

EXPERIMENT (10 MARKS)	FINAL OUT PUT (25 MARKS)	VIVA (15 MARKS)	TOTAL EXTERNAL (50 MARKS)