SYLLABUS AND ORDINANCES

WEF-2010-2011

FOR

BACHELOR OF SCIENCE: ANIMATION& MULTIMEDIA (BSA)

PROGRAMME

**Sri Dev Suman Uttarakhand University
Badshahithaul, Tehri Garhwal, Uttarakhand**

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Ordinance
For
Bachelor of Science: Animation & Multimedia (BSA) Programme 2010 & onwards
UTTARAKHAND TECHNICAL UNIVERSITY, UK.

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1.   Admission

Admission to the BSA Ist semester will be made as per rules prescribed by the Academic Council of the University **or** as per guidelines prescribed by the State Govt. from time to time.

2.   Eligibility

Intermediate.

3.   Attendance

3.1   Every candidate is required to attend all the lectures, tutorials, practical and other prescribed curricular and co-curricular activities. It can be condoned up to 25% on medical grounds or for other genuine reasons.

3.2   A further relaxation of attendance up to 15% can be given by Principal/Dean/ Director of the Institute for the students, who have been absent with prior permission, for reasons acceptable to Head of the Institution/ College/ University.

3.3   No candidate will be allowed to appear in the end semester examinations if he/she does not satisfy the overall average attendance requirements as per clause 3.1 and clause 3.2.

4.   Duration

4.1   Total duration of the BSA Course shall be three years, each year comprising two semesters.

4.2   Each semester shall normally have teaching for the 90 working days.

4.3   A student failing 2 times in I and / or II semester (of first year) and ineligible for the carry over system (clause 8) shall not be permitted to continue studies further.

4.4   Maximum time allowed for completing the BSA course will be 5 (five) years. Those who are unlikely to satisfy the condition shall not be allowed to continue the studies any further.

5.   Curriculum

5.1   The 3 (Three) years curriculum will be divided into six semesters. Each semester include lectures, tutorials, practical and seminars as defined in the scheme of instructions and examinations.

5.2   It will also include co-curricular and extra curricular activities as prescribed from time to time by the Institute/college/university.

6.   Examination

6.1   Student's performance will be evaluated through continuous assessment in the form of Class Tests, Assignments, Quizzes, Viva voce/Practical etc. There shall also be an examination at the end of each semester in theory subjects, practical and project.

6.2   The distribution of marks for the class tests, quiz test, assignments, end semester theory, practical, project, seminar and other examination shall be as per the prescribed scheme of examination.

6.3   The maximum marks for the theory subjects shall consist of marks allotted for end semester examination and sessional work.

6.4   The maximum marks for the practical shall consist of marks allotted for practical examination and sessional work.

6.5   Pass/fail in a subject shall be declared on the basis of total marks obtained in theory/practical examination and the sessional award for theory/practical subjects.

6.6   The minimum pass marks in the theory subjects (including sessional marks) shall be 40%.

6.7   The minimum pass marks in the practical subjects (including sessional marks) shall be 50%.

6.8   The marks of the previous semester(s) shall not be added in declaring the result of any semester examination.

6.9   To pass a semester candidate must secure 50% of aggregate marks in that semester.

6.10   No merit position shall be awarded to a candidate who has qualified for promotion to higher classes with back papers.

6.11   The student failing in the project only but satisfying all other requirements including obtaining 50% or more marks in aggregate will be allowed to submit a new / modified project at any time after three months of the declaration of result without repeating the whole session.

7.   Promotion Rules

7.1   A candidate satisfying all the conditions under clause 6 shall be promoted to the next semester.

7.2   A candidate not satisfying the above conditions but failing in not more than 2 subjects (Theory and/or practical) of a semester examination shall be governed by the clause No. 8.

7.3   All other candidates will be required to repeat the semester either as regular candidate, after re-admission or opting for ex-studentship. This facility is however subject to the time limits stipulated in clause No. 4.

8. Promotion under carry-over system

8.1 A candidate who fails in the category of clause No. 7.2 shall become eligible for provisional promotion to next semester and the carry-over system as per the following table.

For promotion to & exam	Max. permitted no. of carry over subjects of semester					
	I	II	III	IV	V	VI
II	2	-	-	-	-	-
III	2	2	-	-	-	-
IV	2	2	2	-	-	-
V	-	-	2	2	-	-
VI	-	-	2	2	2	-

Admission to & Semester Exams. not Permitted	Carry over subjects not cleared of semester		
V	I	&	II

8.2 No separate carry-over Examination will be held for any subject except for BSA Final year. Any candidate eligible for the carry-over system shall have to appear in the carry over subjects in the subsequent University Examination for the same semester.

9. Ex-studentship

Sessional marks in the subject of an ex-student shall remain the same as those secured by him/her earlier.

10. Result

Results at the end of final year will be declared with the following weightages:

I year	100%
II year	100%
III year	100%

11. Award of Division
11.1 If candidate passes all examinations in single attempt and secures 75% or more in aggregate marks he/she shall be placed in the First Division with Honors'.
11.2 If candidate passes all examinations and secures aggregate marks of 60% or more but less than 75% **OR** greater than or equal to 75% after back in any examination, he/she shall be placed in First Division.
11.3 If candidate passes all examinations and secures aggregate marks of 50% or more but less than 60%, he/she shall be placed in Second Division.

12.   Seminar and Project

12.1   Candidate must secure 50% marks to pass in seminar and project.

13.   Grace Marks

A candidate shall be entitled to grace marks of a maximum of 5 in any one subject in a semester to enable him to pass, provided he is failing in only one subject and has secured the necessary minimum aggregate. The grace marks shall not be added to the marks of the subject or to the aggregate. The grace marks will not be awarded to enable a candidate to pass in a practical or project.

14.   **Scrutiny shall be allowed as per the rules of the University.** Revaluation is not permitted.

Uttarakhand Technical University-Uttarakhand.
Bachelor of Science (Animation & Multimedia)

Programme Structure

SEMESTER – I

CODE:	SUBJECT:	
BSA101:	Fundamentals of Computers.	
BSA102:	Foundation Course in classical animation.	
BSA103:	Principles of Animation.	
BSA104:	Graphic Design	(Adobe Illustrator & Photoshop).
BSA103P:	Principles of Animation:	PRACTICAL_1.
BSA104P:	Graphic Design:	PRACTICAL_2.

SEMESTER - II

BSA201:	Elements of Preproduction.	
BSA202:	2D Digital Animation	(Flash).
BSA203:	Audio Editing	(Adobe Sound booth).
BSA204:	Video Editing	(Adobe Premiere).
BSA202P:	Flash:	PRACTICAL.
BSA204P:	Audio & Video-Editing:	PRACTICAL.

SEMESTER - III

BSA301:	3DS max	
BSA302:	MAYA fundamentals.	
BSA303:	MAYA Modeling	
BSA304:	MAYA Texturing	
BSA301P:	3DS max	PRACTICAL.
BSA304P:	Modeling/Texturing	PRACTICAL.

SEMESTER – IV

BSA401:	MAYA Rigging (Skeletal System)	
BSA402:	MAYA Skinning & Muscle Systems	
BSA403:	MAYA 3D Animation basics	
BSA404:	Digital Compositing	(Adobe Aftereffects).
BSA401P:	Character Rigging/Animation:	PRACTICAL.
BSA404P:	Digital Compositing	PRACTICAL.

SEMESTER – V

BSA501:	3D Character Animation	(Maya).
BSA502:	Lighting	(Maya).
BSA503:	Rendering	(Maya).
BSA504:	Dynamics	(Maya).
BSA501P:	Lighting / Rendering:	PRACTICAL.
BSA502P:	Dynamics:	PRACTICAL.

SEMESTER VI

BSAMP:	Minor project (Individual).
BSAPD:	Group Project & Portfolio development.

FIRST SEMESTER:

S. No	Course No.	Subject	L	T	P	TA	CT	TOT	ESE	Sub. Total
			Period			Sessional			Examination	
Theory										
1.	BSA101	Fundamental of Computers	3	1	-	10	20	30	70	100
2.	BSA102	Foundation Course in classical animation	3	1	-	10	20	30	70	100
3.	BSA103	Principles of Animation	3	1	-	10	20	30	70	100
4.	BSA104	Graphic Design	3	1	-	10	20	30	70	100
Practical										
1.	BSA103P	Principles of Animation-practical	-	-	4	50	-	50	100	150
2.	BSA104P	Graphic Design-Practical	-	-	4	50	-	50	100	150
		Total	12	4	8	-	-	220	480	700

Total Period = 24
Total Marks = 700

SECOND SEMESTER:

S. No	Course No.	Subject	L	T	P	TA	CT	TOT	ESE	Sub. Total
			Period			Sessional			Examination	
Theory										
1.	BSA201	Elements of Preproduction	3	1	-	10	20	30	70	100
2.	BSA202	2D Digital Animation: Flash	3	1	-	10	20	30	70	100
3.	BSA203	Audio Editing (Adobe Sound booth)	3	1	-	10	20	30	70	100
4.	BSA204	Video-Editing (Adobe Premiere)	3	1	-	10	20	30	70	100
Practical										
1.	BSA202P	Flash-Practical	-	-	4	50	-	50	100	150
2.	BSA204P	Audio & Video-Editing: Practical (Sound booth/ Adobe premiere)	-	-	4	50	-	50	100	150
		Total	12	4	8	-	-	220	480	700

TA   : Teacher Assessment
CT   : Class Test
ESE   : End Semester Examination
SUB TOT.   : Subject Total
TOT.   : Total

Total Period = 24
Total Marks = 700

THIRD SEMESTER:

S. No	Course No.	Subject	Period			Sessional			Examination	
			L	T	P	TA	CT	TOT	ESE	Sub. Total
Theory										
1.	BSA301	3DS max	3	1	-	10	20	30	70	100
2.	BSA302	MAYA fundamentals	3	1	-	10	20	30	70	100
3.	BSA303	MAYA Modeling	3	1	-	10	20	30	70	100
4.	BSA304	MAYA Texturing	3	1	-	10	20	30	70	100
Practical										
1.	BSA301P	3DS max PRACTICAL.	-	-	4	50	-	50	100	150
2.	BSA304P	3D Modeling/Texturing PRACTICAL.	-	-	4	50	-	50	100	150
		Total	12	4	8	-	-	220	480	700

Total Period = 24
Total Marks = 700

FOURTH SEMESTER:

S. No	Course No.	Subject	Period			Sessional			Examination	
			L	T	P	TA	CT	TOT	ESE	Sub. Total
Theory										
1.	BSA401	MAYA Rigging (skeletal systems)	3	1	-	10	20	30	70	100
2.	BSA402	Skinning & Muscle systems	3	1	-	10	20	30	70	100
3.	BSA403	MAYA Animation basics	3	1	-	10	20	30	70	100
4.	BSA404	Digital Compositing (Adobe Aftereffects)	3	1	-	10	20	30	70	100
Practical										
1.	BSA401P	Rigging/Animation Practical	-	-	4	50	-	50	100	150
2.	BSA404P	Digital Compositing Practical	-	-	4	50	-	50	100	150
		Total	12	4	8	-	-	220	480	700

TA   : Teacher Assessment   Total Period = 24
CT   : Class Test   Total Marks = 700
ESE   : End Semester Examination
SUB TOT. : Subject Total
TOT.   : Total

FIFTH SEMESTER:

S. No	Course No.	Subject	Evaluation – Scheme							
			Period			Sessional			Examination	
			L	T	P	TA	CT	TOT	ESE	Sub. Total
Theory										
1.	BSA501	3D Character Animation	3	1	-	10	20	30	70	100
2.	BSA502	Lighting	3	1	-	10	20	30	70	100
3.	BSA503	Rendering	3	1	-	10	20	30	70	100
4.	BSA504	Dynamics	3	1	-	10	20	30	70	100
Practical										
1.	BSA501P	Lighting / Rendering Practical	-	-	4	50	-	50	100	150
2.	BSA502P	Dynamics Practical	-	-	4	50	-	50	100	150
		Total	14	4	8	-	-	220	480	700

Total Period = 24
Total Marks = 700

SIXTH SEMESTER:

S. No	Course No.	Subject	Evaluation – Scheme							
			Period			Sessional			Examination	
			L	T	P	TA	CT	TOT	ESE	Sub. Total
Practical										
1.	BSAMP	Minor project (Individual).	3	1	6	50	50	100	150	250
2.	BSAPD	Group Project & Portfolio development	3	1	10	50	50	100	150	250
		Total	6	2	16	-	-	200	300	500

TA   : Teacher Assessment   Total Period =   24
CT   : Class Test   Total Marks = 500
ESE   : End Semester Examination
SUB TOT. : Subject Total
TOT.   : Total

Note: The students with the help of the Institution may do summer training of 6-8 weeks duration, after II and IV Semester in an organization (academic or industrial) which will be submitted in the organization.

Each theory paper will of 100 marks comprising of 70 marks for University examination and 30 Marks for sessional. Each practical will be of 150 marks (100 marks of University examination and 50 Marks for sessional). The following in the distribution for marks (Semester wise):

	Theory	Practical	Total
1. Semester I	4x100	2x150	700
2. Semester II	4x100	2x150	700
3. Semester III	4x100	2x150	700
4. Semester IV	4x100	2x150	700
5. Semester V	4x100	2x150	700
6. Semester VI (a) Minor project (Individual). (b) Group Project & Portfolio development			250 250
TOTAL			4000

BSA101: Fundamental of Computers:

Introduction to computers.
      Computer Definition.
      Computer Characteristics.
      Computer advantages and disadvantages.
      Components of computers (Hardware & Software).
      Generation of computers.
      Types of computer according to usage.

Softwares
      Software Definition.
      Types of software.
      Different types of softwares used in animation.

Operating system
      What is operating system?
      Types of operating system.
      Functions of operating system.

Word Processing, Ms Excel and PowerPoint
      Basics of Ms Word.
      Creating documents formatting, mail merge, table.
      Using spreadsheets creating reports charts.
      Creating presentations, steps of preparing a presentation
      Implementing animation on presentation.

Network & Internet
      What is WWW, e-mail service, role of internet, role of web browser,
      what is search engine, need and working of a search engine,
      popular search engines, Networking, Types of networks,
      Internet its advantages and disadvantages.

References:

Raja Raman V: Fundamentals of Computers.
Sanders D.H.: Computers Today.
Computer Fundamentals by P K Sinha.
Computer Today by S K Gogotia.

BSA102: Foundation Course in classical animation

Introduction to Experimental animation.
Various visual art forms.
Orientation into time and performing art form.
Relevance of message and medium and a relationship.
"Introduction to cut out animation.
(Card board sets, houses, layouts designing)".
Basics of 2D animation and 3D animation,
Clay animation, Flip Books, making of flip books.
Stop motion techniques.
Animation set designing (Table top).
Clay character modeling.
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)".
The Basics of traditional 2D animation.
Intro to the skill, required thereof.
Beginning life drawing.
Use of simple shapes.
How to draw drawings with the help of basic shapes
Learning to draw lines, circles, ovals, scribbles, jig jag (random) patterns etc
Human anatomy. Proportion study of Human body parts.
Learning basic bone structure, muscle flow, head, body, hands, feet
Shading techniques.
What is observation?
Procedure-How to approach.
Importance of guide line-Line of action.
An intro 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, importance of scribbles,
Gesture drawing, Line drawing and quick sketches.
Drawings from observation, memory and imagination.

References (classical animation):

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

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

Stop Motion: Craft Skills for Model Animation by Susannah Shaw (Focal Press)

The ADVANCED Art of Stop-Motion Animation by Ken A. Priebe (Course Technology PTR).

Visual art: a critical introduction by James Morton Carpenter (Harcourt Brace Jovanovich publishers)

Making Clay Animation by Nancy Smith, Melinda Kolk.

Clay Modeling by Sally Henry (Rosen Publishing Group)

Optical Illusion Flip-Book: Astounding Optical Illusions by Gyles Brandreth, Katherine Joyce (sterling publisher)

The Performing arts: music and dance By John Blacking, Joann W. Kealiinohomoku

"Modeling the Figure in Clay" by Bruno Lucchesi, Margit Malmstrom(Watson-guptill Publications)

THE Natural way to draw by KIMON NICOLAIDES (Mariner Books)

Art of Drawing Human Body (STERLING).

BSA103:   Principles of Animation

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.
Intro 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.

References:

Animators Survival Kit by RICHARD WILLIAMS (Faber & Faber).
The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White.
Art in motion: Animation Aesthetics by Maureen Furniss.
Character Animation Crash Course! By Eric Goldberg.
Cartoon Animation (The Collector's Series) by Preston Blair.
Animation from Pencils to Pixels: Classical Technique by Tony White.

BSA104:   Graphic Design (Adobe Illustrator and Photoshop)

Illustrator Introduction, GUI
Introduction to vector graphics
Difference between vector and raster graphics
Work space orientation-setting documents
Symbols-patterns
Blends, clipping paths and masks.
Art work by Trace tools and live paint.
Concepts of adobe illustrator, Interface, Navigation and Work spaces
"About libraries, Rulers and guides, Art boards, Smart guides, Bounding box, Path tools, Pen tool, Pencil tool."
About Grouping, layers, patterns, symbol.
About Blends and meshes, liquify and envelope tools.

Live trace, live paint and live color.
Illustrator for the web
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 by using design tools
Design a text logo for magazine/Newspaper
Design visiting cards
Design greeting cards
Design Kids magazine cover
Design college magazine cover
Design a brochure
Make any Advertisements from newspaper
Design pamphlets on any company
Design information brochures on any company

Adobe Photoshop: 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)
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.
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).
Introduction to 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.
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

References:

Adobe Illustrator CS5 Bible by Steve Johnson.
Adobe Illustrator CS5 Bible by Ted Alspach.
How to Do Everything -Adobe Illustrator CS4 by sue Jenkins.
Adobe Photoshop CS5 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
Teach Yourself Visually - Adobe Photoshop CS5 by Mike Wooldridge (Wiley publishing).
Adobe Photoshop CS5 Bible by steve Johnson.
Adobe Photoshop CS5 Bible by Lisa Danae Dayley & Brad Dayley.

BSA103P: Principles of Animation-PRACTICAL

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.

BSA104P: Graphic Design-PRACTICAL

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).

SEMESTER - II

BSA201: Elements of Preproduction
(Includes Camera Angles/Moves, Brief about "Basics elements to compose in photography", Perspectives and Story boarding).

Camera Angles/Moves
Basic cinematic techniques:
Pan, Tilt, Dolly (Tracking shot), Mechanical, Pull focus, Zoom, Transition, Montage, Framing terms.

Composition Techniques:
Camera Height, Dramatic Angle, Extreme Angle, Birds'-Eye view, Screen Direction,180 degree rule, Titled Horizon, Canted Angle, Extreme Close-Up, Staging, Deep Staging, Planar Staging, Lead the Eye, 3's and 4's, Interior Frame, Layers, Multi-Layer Action.

Crane Techniques:
Crane up, Move away, Crane down, Move toward, Searching Crane, Rise up, Fall Down, Crane Front-to-Top, Crane up Entrance, Crane up Expression, Crane up Look Down, Crane down, Look up.

Techniques of Movement:
Character Dolly, Discovery, Pull Back retraction, Pull Back Reveal, Open up, Close out, Draw in Draw out, Spin Around, Flyover, Depth Dolly, Dolly up, Dolly Down, Spin look, Track through Solid, Vertigo, Expand Dolly, Contract Dolly, Collapse Dolly, Long Shot, Long Take, Delayed Revelation.

Techniques of Perspective:

POV, Inventory POV, POV Object, POV Projectile, Tension Away, Tension to camera, Broken Wall, Voyeur, Mask Vignette, Screen, Reflection, Portal, Shadow, Silhouette, Subjective.

Camera Techniques:

Whip Pan, Whip Cut, Whip Zoom Look, Search up, Back to Front, Focus out, Pass out, Focus Transition
Over expose Fade, Under expose Fade, Ceiling Twist, Flip Over, Shifting Angle, Sleep Over.

Editing Techniques:

Jump Cut, Match Cut, Impact Cut, Impact Move, Thematic Cut, Thematic Move, Subliminal Cut, Cross cut, Cut away, Freeze Frame, Look At, Multi Take, Cut Zoom In, Cut Zoom Out, Montage Sequence, Jump Cut Sequence, Split screen, Sub Clip, Super impose, Fill, Reveal Frame, Walk, Reveal Frame, Collage, Camera Snap, Photo to Scene, Impact Flash, Flashed Cut, Flashed Jump Cut.

Brief about "Basics elements to compose in photography/videography":

1 Rule of thirds: What is rule of thirds? Written by, rule of thirds grid.
2 Balancing elements: Composing Balancing elements like Light against dark, Colors, space, Large against small, Size, Shape, and Texture.
3 Symmetry and Patterns: What is symmetry and what is a pattern, where they are found, how we can break them.
4 Leading lines: What are leading lines?
   Different types of lines in photography: straight (Vertical), Horizontal, diagonal, curvy(s-lines), zigzag, radial.
   Examples and what they symbolize.
   "Converging lines": definition and example.
5 Viewpoint: "What is a viewpoint? Different viewpoints like: Eye Level, Low Angle, High Angle and Dutch Angle."
6 Depth of field: What is DOF, Factors determining DOF like aperture, focal length and distance?
7 Framing: What is framing. What are "Headroom", "looking room", and "leading room" in framing, Framing by Vignetting?
8 Cropping: Definition, Where and why it is used.

Perspectives:

Perspective in animation:
Perspective in 1 point, 2 point, 3 point.
Perspective in multiple points.
Vanishing point in horizon, outside horizon and indoors,
 Importance of eye level.

Objects in perspective:
Blocks and boxes. Curves and cylinders.
Human forms in perspective.

Scale diagrams in perspective.
Cast shadow exercise, Shapes in perspective with light and shade.

Storyboarding:
Elements of storyboarding

Staging: Principles of staging-the center of interest, balance, framing,
lighting, posterization, variety, rhythm, design.

Layout: (animation levels-overlay, overlay/underlay, held level. underlay,
background, camera bed)

Transitions : Cut to, fade to/fade from, x-dissolve/cross dissolve, ripple
dissolve, match cut, omit, dialog, wipe, same as /re-use, in and out,
montage.

Storyboard notations:
OL, UL, BG, SC, SEQ, layout, transitions, dialog, action, frames, camera
movement, SFX, page numbering, flop, camera shakes/jars, cont.,

Creating storyboard for the story with film grammar: frame, shot, scene,
sequence.

Analyze storyboard of a film, working with a storyboard, Visual
continuity, Timing the story board.
Student project-Story boarding.

References (Elements of Preproduction):

The art of layout and storyboarding by Mark t byrne.

Setting Up Your Shots: Great Camera Moves Every Filmmaker Should Know by Jeremy Vineyard (Michael Wiese Productions).
Prepare to Board! Creating Story and Characters for Animated Features and Shorts by Nancy Beiman.
Timing for Animation by Tom Sito.
How to Draw Comics the Marvel way by Stan Lee.
Art of drawing Human Body (Sterling).
Successful Drawing (Andrew Loomis).

BSA202:2D Digital Animation: Flash (Flash scripting not included)

Workspace overview

-Panels (property inspector, library panel, movie explorer, history panel
        color panel, timeline)
-Stage, Pasteboard, Tool Box.

Customize the workshop

Docking, minimizing, maximizing, show /hide panels/creating custom workspace, reset a predefined workspace, delete a custom workspace

Using the stage and tools panel
Selecting and deselecting objects on the stage, tool box overview

Working with Flash documents:

About flash files, (*.FLA,*.SWF,*.FLP,*.AS)
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 (Layer Comp, Select Layer, Merge, Text Options and Flatten Etc).
"Adding media to library (Images, Audio, Video),
 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, brush tool, pen tool.

Draw straight lines, Reshaping lines and shape outlines, snapping (object snapping, pixel snapping and snap alignment, working with color, strokes (ink bottle tool) and fills (Solid fill, Gradient fill, Bitmap fill).

Working with graphic objects:
Selection objects (lasso, magic wand, polygon tool),
Moving (dragging, arrow keys, property inspector),
Copying and deleting objects,
Arranging objects (Stack, Align, group, Break apart groups and objects) and transforming objects (move, skew, rotate, scale).

Using symbols, instances and library assets:
 Symbols overview, Types of symbols(graphic, button, movie clip), Create symbols, Convert animation on the stage into a movie clip, Duplicate symbols, Edit symbols, working with symbol instances.
Animation symbols.

Creating animation:
Animation basics, creating motion, creating key frames, Representations of animation in the timeline, Frame rates, Frame by frame animation(creating key frame, copy/paste key frame, deleting key frames etc), Onion skinning, Extend still images,
Mask layers (create mask layer, link, unlink, and delete and animating the mask layers).

USING timeline effects:
 Twinned Animation (motion tween, shape tween, guidelines),
 Special effects (drop shadow, blur, glow, bevel, adjust color etc)
Filter: Animation filters, Create preset filter libraries,

Blend modes in Flash:
Normal, layer, darken, multiply, lighten, screen, overlay, hard light, Difference, add subtract etc.

Working with text
Adding text, text effect, tweening, spell check, find and replace, transform, modifying.

Working with Sound:
Formats: WAV, MP3, AIFF, SUN AV
Importing audio to the file, modifying, editing, effects and sound compression.

Working with Video: Importing, embedding and creating external links to videos.

References (Flash):

Adobe Flash Professional CS5 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
Flash + after effects by Chris Jackson (Focal press publication).
Flash character animation: applied studio techniques By Lee Purcell (Sams publishing).
Adobe Flash Catalyst CS5 Classroom in a Book (Author: Adobe Creative Team).

BSA203:   Audio Editing: (Adobe Sound booth Software)

INTRODUCTION
    Analog and digital audio
    Basic Preferences
    Audio Hardware Preferences
    Media and Metadata Preferences
    The CTI and Spectral Frequency Display
    Working in the Waveform View
    Level Meters
    Supported File Types in Sound booth
    Navigating with Workspaces
    Working with Panels and Saving Custom Workspaces
    Basic Recording.
    Understanding various digital audio formats like
    .WAV, .AIFF, .MP3, .swf, .WMA etc
    Understanding Multichannel audio recording, synchronize audio
    and video.
    Understanding regions and play lists, editing of fields,
    Name markers, loops, and regions.

SOUNDFILE EDITING:
    Trimming, Adjusting Volume Levels
    Adjusting Volume with Apply Hard Limit
    Opening Files with Bridge
    Applying Fades with Fade in and Fade Out
    Applying and Controlling Fades

Changing Volume with Key frames, Editing Key frames
Adjusting Volume with the Floating Palette

Combining Sound files with Mix Paste
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.

Manipulating audio:
 Auto trim/crop, mute, DC offset, resample, reverse, smooth/
enhance, Fade in/out, insert silence, bit depth converter etc.

Working with Multi track Projects
Starting a Multi track Project
Adding Tracks to an Existing Multi track Project
Multi track Project Control and Tools
Muting and Soloing
Trimming and Fading
Key framing
Replacing and Moving Tracks
Internal Edits
Finalizing the Two-Track Mix
Insert track markers, adding multiple tracks, adjusting track
time, musical instrument file processing.

Mixing Multiple Stems in a Multi track Project:
Naming Tracks, Balancing Tracks, Finalizing the Mix.

Spectral Frequency Editing:
Importing Video Clips
Understanding the Spectral Frequency Display
Display Settings and Selection Tools
Zooming and Selecting a Range of Frequencies
Working with Frequency Selections
Auto-Healing and its Limitations
Auto-Healing Combined with Mix Paste
Another Use for Mix Paste
Problem Solving with Multiple Applications of Mix
Creative Sound Design.

Clean Up Audio:
    Automatic Noise Reduction
    Noise Reduction with a Captured Noise Print
    Hum Noise Reduction with a Captured Noise Print
    Limitations of Noise Reduction
    Removing Clicks and Pops, Rumble Removal.

Create Loop:
    Create Loop Overview, Selecting and Trimming the Loop
    Multi tracking with Loops
    Equalize Volume, Match Volume.

Change Pitch and Timing:
    Modifying a Voice Track, Modifying a Loop.

Effects Overview:
    Working with the Effects Rack
    Optimizing a Voice Track
    Mastering a Music Track
    Working more with Presets
    Reverb, Delay, Sound level, Equalization, Special.
    Audio effects like: EQ, Volume, chorus, distortion,
    Delay/echo, pitch, bend/shift, reverb, vibrato, normalize etc.

Scores:
    Adding and Key framing the Default Score to a Video.
    Key framing a Score's Intensity
    Key framing a Score's Parameters
    Using Scores Downloaded from Resource Central.

Metadata: Defining Terms and Properties.
    Automatic S.
    Using Advanced Features: round trip and speech.

Reference (Audio Editing):
The Sound Effects Bible: How to Create and Record Hollywood Style
Sound Effects. Author: Ric Viers (Michael Wiese Productions).
Adobe Sound booth CS5 by Luisa Winters.

BSA204: Video- Editing: Tools & technology
(Adobe Premiere Software)

Introduction:
What is premiere pro, why and what for?
Concept of non linear editing.

Digital video principles:
Video formats, frame rates, aspect ratios, progressive vs. interlaced,
video outputs, compressions.

Introductory project:
Workflow
Adding footage
Time code
Basic
Interface of premiere pro
All panels of premiere (tools, project, monitor, source,
Timeline, audio meters, misc)

Importing and organizing footage:
Project, Sequence, Capturing, Importing, Sorting

Basic video editing:
Rough editing, Preliminary, Overlay edit, Layers
Ripple edit, Slip edit, Razor tool, Moving edit
Navigating
Understand all Tools on toolbox for editing clips.

The art of video editing:
Job, When, Avoiding, Pacing, Establishing, Emotional
Fixing, Matching.

Helpful editing techniques:
Markers, replacing footage, Exporting still, Alternate,
Rearranging clips, Targeting, Disconnecting and Offline.

Adjusting clip properties:
Rubber band, Position, Anchor, Size.
Playing with time:

Speed, Rate, Backwards.

Attributes of video:
Pixels, Frame rates, HD.

Creating moving elements:
Layered, Animating and Fading.

Applying video transitions:
Applying (various types), Effectively, Default.

Working with audio:
Ambient, Cutting music, Changing, Fixing, Censoring.

Applying video effects:
Censored, Flare, Bug, Textures
Various effects: adjust, blur, sharpen, channel, color correction,
Distort, generate, image control, keying, noise, perspective,
Stylize, time, transition, transform utility, video.

Basic compositing:
Compositing, Green (keying), Blend.

Color correction:
White balance, Contrast, Luminance, Cinematic, Vignette,   Night.

Making titles, credits and lower thirds:
Titling and superimposing, Third, Credits.

Exporting video:
Sequences, Media encoder, Formats, Portions, Letter boxed.

Working with other applications:
Other apps, Final cut.

Reference (Video Editing):
Adobe Premiere Pro CS5 Classroom in a Book (Author: Adobe Creative
Team) Adobe Press.

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

BSA202P: Flash-PRACTICAL.

Drawing a background scene with brush, paint bucket and pencil tool.
Symbols
Graphic (animation of a graphic object with motion tweening),
Movie clip (small animation with movie clip),
Buttons (making interactive web buttons).
Animation with text and putting different text effects.
A lip synchronization exercise with audio and character.
Small web file having embedded video and playing it.
Tweening Animation (shape tween and motion tween)
Walk cycles of Biped with tweening (human)
Walk cycles of Quadruped with tweening (animal).
Adding time line effects on animations created above.
Mini project on flash features.

BSA204P: Audio\Video-Editing: PRACTICAL.

Recording your own voice with sound booth
Using copy, cut, paste options make a new tune
By using mix paste option add background music to your voice
Add fade in and fade outs to a track
Make a loop of sound
Make a multi track composition
Add effects to a track
Add scores to a track
Change pith and time to a given track
Make a speech transcription to a given track
Cleanup audio.
Making a short movie 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.

SEMESTER - III

BSA301: 3DS MAX

The 3ds Max Interface:
Getting familiar with the interface, Touring the command panels
 Creating primitives, Navigating the viewports
Understanding the concept of four view ports.
Aligning object in the each view port in X, Y, Z axis
 Using hotkeys, Configuring the viewports
 Transforming objects, Using the toolbars.

Hierarchies
Understanding hierarchies, Understanding reference coordinate systems,
Editing pivot points, Linking objects, Animating a hierarchy.

Extruding Objects
Drawing a shape to extrude,
Creating text, Extruding vs. beveling text.

Lathing Objects
Lathing pitfalls, Drawing a shape to lathe, Lathing a shape, Using the
Outline command, The Shell Modifier, Changing the lathe axis.

Lofting Objects
Shape vs. path, Lofting issues and problems
Lofting multiple shapes, Loft deformations, Animating loft deformations
Mapping a lofted object, The Sweep Modifier.

Introduction to Polygonal Modeling
Creating basic geometry.
Sub-object vertex commands.
Sub-object edge commands.
Sub-object polygon commands.

Modeling with Modifiers
Bend, Displace, FFD (freeform deformation), Lattice, Noise, Slice, Applying modifiers at the sub-object level, Copying and pasting modifiers, Important modifier stack issues.

Cloning Methods
Copying objects, Instancing objects, Referencing objects, The Make Unique option.

Particle systems:
What are particles?
Understanding particle systems,
Exploring standard particle types create different particle systems like Spray, Snow, Blizzard, PArray, Pcloud, Super Spray.

Camera Basics

Creating cameras, Understanding target and free cameras
Using Camera Pan, Truck, and Dolly
Adjusting the field of view, Understanding aspect ratio
Showing safe frames, choosing render output size.

Reference (3ds max):
3ds Max 2010 Bible by Kelly Murdock (John Wiley & Sons).
3ds max a step by step approach by kurt wendt.

BSA302: MAYA fundamentals

Introduction to the interface of Maya.
Creating a Project in Maya-about Project Settings.
Saving Files and File Types: about .ma and .mb file types.
Viewing Geometry (Navigation), reviewing the Viewport menus,
Quick layout buttons, Change and resize panels, Change the display of objects.

Transforming objects, 3D coordinates: World space, object space, and local space, Freeze and reset transformations.

QWERTY tool box: About Selection Tool (Q), Move Tool (W), Rotate Tool (E), Scale Tool (R) and Manipulator Tool (T).

Maya user interface, Menu bar, Tool bar, Hot box.
Using the shelf, construction history, hot keys, Using the spacebar, manipulating a view.

Selecting objects, types of selection.
Single selection, adding and subtracting selection.
Edit menu selection options.
Marquee selection, Lasso selection, selection mask.

Using hyper shade, hyper graph, Relationship editor and outliner.
The channel box, Layer Editor, Attribute Editor, the connection editor.
 Duplicating objects duplicate with transform and duplicate special options.

 Pivot points, Grouping and Parenting.
Working with Shelves, Using layers.

Introduction to snapping (to grid, point, curves and view planes)
2D snapping and 3D snapping.
Helpline, command line, range slider, command line, playback controls, script editor, MEL, preferences.

Basic Introduction to Creating of Simple primitives, poly count, surface normals.
Basic Introduction to materials,
Basic Introduction to different Lights,
Basic Introduction to camera types.
Rendering a still, rendering an AVI, Rendering an image sequence.

References (Maya):
Mastering Autodesk Maya 2011 by Eric Keller.
Introducing Maya 2011 by dariush derakhshani.

BSA303: MAYA Modeling

What is 3D Modeling?
Types Of Modeling: Nurbs, polygon, subdivision.

Techniques of Modeling:
Poly count (low poly, high poly, polygon count),
Surface hardness (object/prop, organic/characters.)

Image plane for Modeling:
 Create, edit, or position an image plane.

Introduction to Polygons:
 Polygons (edge, vertex, face, vertex face, UVs),
 Combining, separating, and splitting,
 Polygon selection (object mode, sub-object mode: edge, vertex, face,
 vertex face, UV, edge loop, edge ring, border edge)
 Create polygon primitives (create polygon primitives interactively from
 shelf & from create menu.)
 Move, rotate, or scale polygon components
 Modifying polygon meshes(chamfer, split poly, insert edge loop tool,
 merge vertex, detach component, extrude, bridge, append to poly,
 combine ,separate, triangulate, quadrangulate, create polygon tool,
 sculpt geometry, smooth, mirror geometry.
 Converting poly and subdivision.

Nurbs Modeling:
What are Nurbs?
Components of Nurbs curves, degree of Nurbs curves and surfaces,
moving edit points vs. Moving cvs, Bezier curves, reshape a curve or
surface manually ,align a curve with a curve or surface, align surface
edges ,smooth a curve ,lock or unlock the length of a curve ,straighten,
smooth, curl or bend a curve ,extend a curve , extend a surface, trimming,
stitching.

Editing Nurbs: Duplicate Nurbs patches, project curve on surface,
intersect surfaces, trim tool, un-trim surfaces, Booleans : union tool,
difference tool, intersection tool, attach surfaces, attach without moving,

detach surfaces, align surfaces, open/close surfaces, move seam, insert isoparms, extend surfaces, reverse surface direction, rebuild surfaces, stitch surface points.

Putting Surfaces: Revolve, loft, planar, extrude, birail, boundary, square, bevel.

Editing Curves: duplicate surface curves, attach curves, detach curves, align curves, open/close curves, move seam, cut curve, intersect curves, curve fillet, insert knot, reverse curve direction, rebuild curve, add points tool, curve editing tool, project tangent, modify curves, Bezier curves.

Converting Nurbs to polygons and subdivision.

BSA304: MAYA Texturing

Introduction to UV mapping.

Creating UV's (Polygons)

Automatic UV mapping, Planar UV mapping, Cylindrical UV mapping, Spherical UV mapping, User-defined UV mapping, Camera UV mapping, Transfer UVs between meshes, Confirm UV placement.

UV Texture editor overview

UV sets: Create UV sets ,Switch between UV sets ,Duplicate, rename, or delete a UV set ,Assign a texture to a UV set ,Copy UVs from one UV set to another.

Editing UV's in Texture editor:

Select UVs, Display a subset of UVs,
Dolly or track within the UV Texture Editor,
Display a texture behind the UVs, Delete UVs,
Update a texture image after UV modification,
Use the UV Texture Editor grid,
Save an image of the UV layout,
Modify UVs using the UV Lattice Tool,
Modify UVs using the UV Smudge Tool,

Separate & attach UV shells,
Display overlapping UVs ,
Map border UVs to a square or circle,
Straighten border UVs,
Relax and untangle UV's,
Unfold a UV mesh,
Flip or rotate UV shells, Copy UVs,
Color attributes between polygons.

Nurbs UV Mapping:
Implicit and explicit UV set,
Limitations of UV's for Nurbs in Maya.

Texture Map: Color maps, Transparency maps, specular maps,
Reflection maps, Bump maps, Displacement maps.

Toon Shading: Assign Fill shader, Assign outline.

Surface Materials:
About surface materials.
Common surface material attributes,
Common surface material Specular Shading attributes.

References (Maya Texturing):

Advanced Maya Texturing and Lighting By Lee Lanier
(John Wiley and Sons).

BSA301P: 3DS MAX: PRACTICAL.

BSA304P: 3D Maya: PRACTICAL.

Modeling Props and sets (Locations).
Modeling a high poly model.
Technical issues related to managing high poly model.
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.
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.

SEMESTER – IV

BSA401:   MAYA Rigging

What is rigging and why it is needed?
Pivot: setting a pivot point,
Group: creating groups in rigging and maintaining hierarchy,

Joint tool: Introduction to bone system/Joints.
Creating bone system and maintaining naming conventions,
Parenting the joints and creating hierarchies in joint setup.
Reroot skeleton, remove, disconnect and connect joint,
Mirror joint: behavior and orientation, maintaining naming conventions.
Set preferred angle.

IK handle tool: SC solver and RP Solver.
IK Spline handle tool: root on curve, auto parent curve.
What is Inverse kinematics and Forward Kinematics?
IK and FK basics, IK and FK switch, stretchy IK and FK.

Constraints: What are constraints?

Point constraint: Set point constraints, Edit point constraints, Animate
target object weights.
Aim constraint, Orient constraint, Scale constraint, Parent constraint,
Geometry constraint, Normal constraint, Tangent constraint,
Pole Vector constraint.

Animation-Constraint blending,
Set Driven Key-Constraint blending
Animate and constrain an object
Animation-Constraint blending workflow

Turning all constraint nodes on or off.

Creating Deformers:
Lattice: reset lattice, remove lattice tweaks,
Wrap deformer: adding and removing wrap deformer influence objects,
Cluster deformer: paint cluster weight tool, soft modification tool,
The bend deformer, Flare deformer, Sine deformer, squash deformer,
twist deformer, wave deformer, Sculpt deformer,
Jiggle deformer: paint jiggle weights tool,
Wire deformer: wire deformer tools under edit deformers menu, paint
wire weights tool,
Wrinkle tool, Point on curve deformer,
Edit deformer's options,
The edit membership tool,
The prune membership tool,
Mirror deformer weights tool.

Use of deformers in rigging process.
Maintaining proper hierarchy, grouping and creating controls.
Creating control objects.
Creating a global controller.

BSA402: Maya Skinning & Muscle systems

Bind pose and its importance.
Skinning: types of skinning.
 Smooth binding: Bind to options, bind method and skinning method,
Normalize weights, setting max influences, Drop-off rate.

Interactive skin bind options.

Rigid binding: bind to options, binding methods: closest point, partition
set.
Edit smooth skin: adding and removing influences,
Paint skin weights tool,
Import and export of skin weight maps,
Mirror skin weight tools,
Copy and smooth skin weight tools,
Copy and paste vertex weights,
Prune small weights,

Weight normalization: disable and enable weight.
Substitute geometry: Old and new geometry options/settings.
Edit rigid skin: Create flexor, copy flexor, preserve skin groups options.

Introduction to Muscle system.
Muscle creator and converting surface to muscle bone.
Make capsule and adding locator to capsule,
Setting up master muscle controller.

Simple muscle: Muscle builder and muscle parameters.
Muscle spline deformer, custom muscle shapes,

Muscle skin setup: Applying muscle system skin deformer,
Convert smooth skin to muscle system,
Re-initialize setup data on muscle system,
Safe delete history,
Disconnect muscle objects, directions, displaces,
Disconnect muscle smart collides.
 Setup for relative sticky deformation,
Setting selected muscles as relative and non relative.

Muscle objects: connecting, dis connecting and deleting muscle objects.
Base pose for muscle objects,
Paint muscle weights options.
Muscle Weighting: applying, saving, mirror, transfer and prune weights.
Defining muscle direction.
Displace: create muscle displace, connecting and dis connecting muscle
displace nodes.
Creating smart muscle collisions and self collision options.
Muscle caching.
Working with Muscle rig.

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.
Rigging solutions to Anatomical Problems.
Using advanced rigs to archive natural articulation of character.

References (Maya Rigging):

An Essential Introduction to Maya Character Rigging by Cheryl Cabrera (Focal press).

BSA403:   MAYA 3D Animation basics

Brief about 12 animation principles:
Squash and stretch, anticipation, staging,
Straight ahead action and pose to pose animation,
Follow through and overlapping action, Slow In and Slow out (ease in and ease out), Arcs, secondary action, timing, exaggeration, solid drawing, appeal.

Animation Basics:
Animation in Maya, Controlling animation, previewing animation
Play blasting animation, Muting animation, Adding sound to your animation, Baking animation, Animation Snapshot and Animated Sweep, Turntable animation, Scene time warp effects.
Animated rotation in Maya, Edit animation preferences,
About Maya's timeline, about Maya's playback controls,
Use the animation tools in Maya, set the appearance of key ticks in the Time Slider, Create a turntable animation, Preview, Playback and Play blast animation, Add sound to your animation, Create time warping effects, Set Animation Snapshot and Animated Sweep.

Key frame Animation: Keys, Auto Key, Keys in the Attribute Editor
Keys in the Channel Box, Graph Editor, and Dope Sheet,
Cutting, copying, and pasting keys between scenes,
Keys clipboard, Driven keys, Breakdowns, In-betweens,
Key frame animation and the Graph Editor, Key frame animation and the Dope Sheet, Manipulating key frames in timeline, different ways to set key frames, pasting key frame data to other objects, Set keys, Edit keys, Set Breakdowns, Set In-betweens, Set Driven Keys,
Use the Graph Editor and Dope Sheet, Edit curves, Edit keys from curves.

Nonlinear Animation:
What is nonlinear animation?, Nonlinear animation tools in Maya
Add audio to a sequence, Manipulate camera shots in a sequence, Play
blast camera shots.

Path Animation:
What is path animation? Positioning your object on a path curve,
orienting your object on a path curve, Animating objects along a path,
manipulating your object on the motion path.
Motion path markers, Marker timing, create a motion path animation,
Edit motion paths
Animate along a motion path, Set motion path markers.

Animation Menus: Edit, Window, Animate/ Geometry Cache, Ghosting
animation sequences.

Animation Windows and Editors:
Animation Layer Editor, Camera Sequencer,
Channel Control Editor, Dope Sheet overview,
Set Driven Key window, Trax Editor, Utilizing the trax editor to blend
animation clips.

Graph Editor: Graph Editor overview, menu bar, About graph editor
toolbar, outliner, graph view, adding or deleting keys in graph editor,
Scaling keys in the graph editor, About function curves (f-curves)
interpolation, Working with buffer curves, About tangent handles for fine
tuning animation, Moving the key frames using set breakdown, Cycling
animation in Maya, different tangents in graph editor, Animating
seamless cycles, Optimizing animation data.

Brief about Animation Layers in Maya.

References (Maya Animation):
Character animation in 3D: By Steve Roberts (Focal press)
Animators Survival Kit by RICHARD WILLIAMS (Faber & Faber).
The Animator's Workbook: Step-By-Step Techniques of Drawn Animation
by Tony White.
Art in motion: Animation Aesthetics by Maureen Furniss.
Character Animation Crash Course! By Eric Goldberg.

Cartoon Animation (The Collector's Series) by Preston Blair.

BSA404:　　　Digital Compositing_01 (Adobe Aftereffects)

What is compositing?
Types of compositing.
Various softwares of compositing.
About Adobe after effects.
Introduction to after effects.
Interface.
About work spaces.
About project panel.
About time panel.
About compositing panel.
About compositing settings.
How to import illustrator and Photoshop files.
About animation in after effects.
Keying various properties like opacity, position, rotation, scale, anchor point.
Copying and pasting key frames.
What is pre-compose or nesting.
About blending layers and compositing.

Working with video.
Creating common motion graphic elements.
Color correction.
Power of effects in after effects.
Mastering masking and shape layers.
Creating text and animating.
Becoming more efficient by using markers, aligning things.
About painting in aftereffects.
Advanced animation (puppet animation, using graph editor).
Working with Photoshop files.
Project: animating elements from a photo.
Playing with time.
About 3d compositing in aftereffects.
About keying-working with green or blue screen.
Stabilizing and tracking motion.
Introducing mocha.
About expressions.
 Working with audio.

Mastering output.
Optimizing and tweaking aftereffects.
Integration with other softwares.

References (After effects):

Creating motion graphics with after effects by Trish and Chris Meyer (Focal press).
Adobe after Effects CS5 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
After Effects Apprentice, Second Edition [Paperback] Author: Chris and Trish Meyer (focal press.)
The After Effects Illusionist: All the Effects in One Complete Guide by Chad Perkins (Focal press.)

BSA401P: Rigging/Animation   PRACTICAL.

Creating a biped rig or Quadruped rig or Insect rig.
Mechanical rig, Vehicle rig.
Rigging various props.

BSA404P: Digital Compositing PRACTICAL.

Wire removals, Rotoscopy.
Color correction, Keying.
Tracking and stabilizing.
Title effects, applying various effects.

SEMESTER – V

BSA501:   3D Character Animation

Producing natural articulation of realistic & semi-realistic, imaginary characters.
Body language, attitude, character interaction, Animal walk& run cycles.
Biped Character walk cycles.
Biped Character run cycles.

Facial animation and lip-sync.
Nonlinear Animation with trax editor.
Working with character sets and clips.
QUADRUPED Character Animation.

Character redirection.
Character remapping.
Using trax and clips with particle animations.
Getting free stock motion capture files.
Applying motion capture using retargeting.
Working with clips to tweak motion capture files.
Destructive animation with clips.

Reference (3D Character animation):
Mastering Autodesk Maya 2011 by Eric Keller.
Character animation in depth (Creative professionals press) Author: Doug Kelly.
The Human Figure in Motion by Eadweard Muybridge.

BSA502:   Lighting

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
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
Activating caustic light effects, Tuning caustic settings
Setting caustic light effects on metal
Using final gather for indirect lighting, tuning final gather and reusing final gather maps

Reference (Maya Lighting and Rendering):
Lighting for digital video & television By John Jackman (Focal press).

Advanced Maya Texturing and Lighting By Lee Lanier (John Wiley and Sons).

BSA503:   Rendering

Rendering and Render Setup:
About rendering and renderers:
Introduction to rendering, Hardware, software, and vector rendering.

Renderers: Maya Software renderer, Maya Hardware renderer.

Brief about Maya Vector renderer, mental ray for Maya renderer.

Rendering menus: Render View , Hardware Render Buffer, Render Settings , Hyper shade , Rendering Flags, Shading Group Attributes, Approximation Editor, Custom Text Editor.

Rendering Windows and Editors:
Render settings: Maya Software tab: Edge anti-aliasing, Number of Samples, Multi-pixel Filtering, Contrast Threshold, Field Options, Ray tracing Quality, Motion Blur, Render Options, Memory and Performance Options, IPR Options,

Render settings: Common tab options: Color Management, File Output, Frame Range, Renderable Cameras, Image Size, Render Options.

Render View: Menu bar and View toolbar options

Camera set up for rendering: Cameras: Motion blur and depth of field, Framing objects with a camera: Camera aim, Angle of view (focal length),Safe display regions for TV production, Clipping planes.
Create and use a camera: Create a camera, Adjust a camera's attributes, Make an existing camera renderable, Turn scene view guidelines on or off ,Adjust depth of field, Camera limitations, Look through (select) a camera, Frame your scene.
Panning and zooming in 2D
Using a stereoscopic camera.
Tessellation and Approximation: Tessellate NURBS surfaces, Tessellate polygonal surfaces, Tessellate subdivision surfaces

Rendering a scene:
Creating shading materials for objects,
Refining shading materials for objects,
Maya renderers, Rendering a single frame using IPR,
Rendering using the mental ray for Maya renderer,
Batch rendering a sequence of animation frames,
Viewing a sequence of rendered frames.

Shading surfaces: About shading and texturing surfaces, Surface Relief,
Backgrounds
Reflection and Environment, Atmosphere, Baking textures and
Prelighting
mental ray for Maya Shading, Render node utilities, Shading menus,
Shading Windows and Editors, Shading Nodes.

Mental ray for Maya rendering.
Introduction to Mental Ray: Working with Final Gather and GI.
Render Layers: Render layer overview, working with render layers
Different layer examples, creating render layers
Splitting a scene into render layers
Applying render layer presets
Setting renders layer overrides
Render layer concepts, Mask and depth channels

Render passes: Introducing render passes
Comparing render passes and render layers
Editing render passes, Using appropriate materials
Batch-rendering passes, Compositing in After Effects
Rendering the EXR image format
Render tiles in the Maya Software renderer, Visualize interactively in
the scene view, Visualize scenes and render images.

Diagnose scene problems.
Rendering nodes
Render the scene using ray tracing
Render the scene using caustics
Render the scene using Global Illumination
Rendering the scene, rendering the effects & network rendering.

Reference (Rendering):

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

BSA504: Maya Dynamics

Particle tool
About particle emitters
Basic properties of particle shape node

About cycle emission
about volume emitters, emitting from surfaces, emitting from curves.

Hardware rendering of particles
Reusing particle shape nodes with different emitters
Colliding particles with surfaces
Particle collision events
Particle simulations with texture maps
About sprites, sprite wizard
particle conserve, emitting particles from particles
Particle instancing.

Air field, drag field, gravity field
Newton field, Radial field, Turbulence field, Uniform field
Vortex field, Volume axis field.

About goals
About creation and runtime expressions

About rigid bodies:
Nail constrain, pin constrain, hinge constrain, spring constrain
barrier constraints.

Keying active/passive attributes
About solvers
Baking simulations

About soft bodies: goals with soft bodies
Paint weights tool for soft bodies, springs in soft body simulations
Lattices in soft body simulation.

Shatter effects
About n-particles
About fluids

BSA501P: Animation PRACTICAL.

Biped walk/run/jump
Quadruped walk/run/jump.
Lifting weights.
Pulling or pushing objects.
Climbing a wall or staircase.

BSA502P: Dynamics PRACTICAL.

Creating snow balls or Fire or smoke effects by using fluids/particles
Adding tyre tracks to mud or snow, shuttering a glass effect.
Creating underwater environment/ocean/space ship/Fire ring by using particles or soft bodies or fluids or particles.
Creating simulations like bowling/dropping bombs by using rigid bodies or instances.

SEMESTER VI:

BSAMP: Minor project (Individual).

Students to do individual project from any of the modules (Preproduction or 2danimation or 3D modeling/texturing/animation or visual effects or post production etc).

BSAPD: Project &Portfolio development

Students to design a project and work in a group with every individual contributing to various aspects of the project.
Student to develop a portfolio for future placement and career

Other Books for reference:

Preproduction and 2D:
ANIMATED CARTOONS (1920) by Edwin G. Lutz.
Animation 1: Learn to Animate Cartoons Step by step by Preston J. Blair.
Acting for Animators, Revised Edition: A Complete Guide to Performance Animation by Ed Hooks.
Creating Characters with Personality: For Film, Television by Tom Bancrof
Directing the Story: Professional Storytelling... by Francis Glebas.
Drawn to Life: 20 Golden Years of Disney Mast... by Walt Stanchfield.
Force: Dynamic Life Drawing for Animators, Second... by Mike Mattesi
The Animation Book: A Complete Guide to Animated... by Kit Laybourne
The Art of 3-D Computer Animation and Effects, 3rd Edition by Isaac Kerlow.
The Illusion of Life: Disney Animation by Ollie Johnston.
The Animation Bible: A Practical Guide to the animation by Maureen Furniss
The Animation Book (1979) by Kit Lay bourne
The art of Walt Disney (1942) by Robert D. Field
Walt in Wonderland (1992) by Russell Merritt and J.B. Kaufman.

For Film making, Cinematography etc:

1. Film Directing Shot by Shot: Visualizing from Concept to Screen (Michael Wiese Productions) by Steve Katz.

2. Cinematography for Directors: A Guide for Creative Collaboration. Jacqueline B Frost (Author) Michael Wiese Productions.

3. Cinematic Storytelling: The 100 Most Powerful Film Conventions Every Filmmaker Must Know by Jennifer Van Sijll (Michael Wiese Productions).

4. Cinematic Body (Theory Out Of Bounds) by Steven Shaviro

5. Theory of Film by Siegfried Kracauer

6. The Imaginary Signifier: Psychoanalysis and the Cinema by Christian Metz.

7. Based on a True Story: Fact and Fantasy in 100 Favorite Movies by Jonathan Vankin, John Whalen.

8. Film Language: A Semiotics of the Cinema by Christian Metz, Michael Taylor.

9. Architecture and Film by Mark ed Lamster, Mark Lamster.

10. The Journey of Luke Skywalker: An Analysis of Modern Myth and Symbol by Steven A. Galipeau.

11. The Geopolitical Aesthetic: Cinema and Space in the World System (Perspectives) by Fredric R. Jameson.

12. Concepts in Film Theory (Galaxy Books) by J. Dudley Andrew.

13. Death 24x a Second: Stillness and the Moving Image by Laura Mulvey.

14. The Shadow and its Shadow by Paul Hammond.

15. Babel and Babylon: Spectatorship in American Silent Film by Miriam Hansen.

16. Film: The Key Concepts by Nitzan Ben-Shaul.

17. Film Art: An Introduction by David Bordwell, Kristin Thompson.

18. Our Films Their Films by Satyajit Ray.

19. Contemporary Asian Cinema: Popular Culture in a Global Frame by Anne Tereska Ciecko.

20. The Aesthetics and Psychology of the Cinema (The Society for Cinema Studies Translation Series) by Jean Mitry.

21. Understanding Movies (10th Edition) by Louis Giannetti

22. The Citizen Kane Crash Course in Cinematography: A Wildly Fictional Account of How Orson Welles Learned Everything about the Art of Cinematography in Half an Hour. Or, Was It a Weekend? (Author: David Worth) (Illustrator: Muse Greater son) Publisher: Michael Wiese.

23. Rebel without a Crew: Or How a 23-Year-Old Filmmaker With $7,000 Became a Hollywood Player Author: Robert Rodriguez (Plume).

24. The Filmmaker's Handbook: A Comprehensive Guide for the Digital Age (Author: Steven Ascher) Plume.

25. Cinematography: Third Edition Kris Malkiewicz (Author), M. David Mullen (Author) Fireside.

26. The Making of Star Wars: The Empire Strikes Back by J.W. Rinzler (Author) Ridley Scott (Foreword) Publisher: Lucas Books.

27. Film Directing Fundamentals : See Your Film Before Shooting (Author: Nicholas Proferes) Focal press.

28. The Five C's of Cinematography: Motion Picture Filming Techniques Joseph V. Mascelli Publisher: Silman-James Press.

29. Master Shots: 100 Advanced Camera Techniques to Get an Expensive Look on Your Low-Budget Movie by Christopher Ken worthy.

For Post Production/Compositing and Visual effects:

Digital Compositing for Film and Video, By Steve Wright [Focal press].

Professional Digital Compositing: Essential Tools and Techniques byLee Lanier Publisher:"Sybex".

The art and science of digital compositing: techniques for visual effects, By Ron Brinkmann (Morgan Kaufmann)

Title Digital fusion: Courseware, Publisher Eyeon Software Inc.,

Digital Fusion: Authors Hal Berghel, Judson Rosebush (John Wiley & Sons).

Special Effects: The History and Technique Billboard Books;   by Richard Rickitt (Author) Ray Harryhausen (Foreword)

Industrial Light & Magic: Into the Digital Realm. Author: Mark Cotta Vaz and Patricia Rose Duignan (Collaborator) publisher: Del Rey.

The Visual Effects Arsenal: VFX Solutions for the Independent Filmmaker by Bill Byrne (Focal press).

The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures by Jeffrey A. Okun (Editor), Susan Zwerman (Editor) Focal press.