

Study & Evaluation Scheme
Of
Bachelor of Science (Animation)
B.Sc. (Animation)

[Effective from the academic year 2020-21]



DEPARTMENT OF COMPUTER SCIENCE

ANWARUL ULOOM COLLEGE (AUTONOMOUS)

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B.Sc. ANIMATION

Semester I

CHOICE BASED CREDIT SYSTEM

Sr. No.	Paper Code	SUBJECTS	Classes		Credits	Evaluation Scheme			
			Th	Pr		Internal	External Exam Min	Max	Total
01	BSA 101	English	4	0	4	20	32	80	100
02	BSA 102	Second Language	4	0	4	20	32	80	100
03	BSA 103	Information Technology	4	0	4	20	32	80	100
04	BSA-104	Basics of Animation and Design	4	0	4	20	32	80	100
05	BSA 105	Graphic Design –I (Corel Draw)	4	0	4	20	32	80	100
06	BSA 103P	Information Technology-LAB	0	2	1	0	20	50	50
07	BSA 104P	Basic Animation Lab	0	2	1	0	20	50	50
08	BSA 105	Graphic Design-LAB	0	2	1	0	20	50	50
09	AECC-I	Environmental Studies	2	0	2	0	20	50	50
	TOTAL		22	6	25	100	240	600	700

B.Sc. (Animation) I year I Semester
Theory Paper/Paper Code: BSA101
ENGLISH

Max Marks: 80
Hrs/Week: 05

No. of Credits: 04
No. of Hrs: 48

Unit I: (12Hrs)

Poetry

1. She -- Lakshmi Kannan
2. Songs Of The Ganga -- A.K. Mehrotra

Prose

1. Road Safety -- Source internet-WHO
2. Hard Work and Honesty or Good Bricks -- C. Rajagopalachari
3. Art and Literature – APJ Abdul Kalam

Unit II: (12Hrs)

Prose

1. The Annihilation of Caste –Dr B R Ambedkar
2. The Portrait of a Lady – Khushwant Singh
3. Refund – Fritz Karinthy(One Act Play)

Unit III: (12Hrs)

Grammar and Composition

Vocabulary: Synonyms, Antonyms, Idioms, Homonyms and Homophones

Composition: Paragraph Writing

Unit IV: (12Hrs)

Grammar and Composition

Grammar: Parts of Speech, Verbs, Tenses and Articles

Composition: Letter Writing

Text Book:

Skills In English - By E. Suresh Kumar, B. YadavaRaju, C. Murali
Krishna

B.Sc.(Animation) – I Year I Semester
Theory Paper/Paper Code: BSA103
INFORMATION TECHNOLOGY

Max. Marks: 80
Total no. of Hrs: 48

No. of Credits: 04
Hrs/Week: 04

OBJECTIVE: To introduce the students with routine tools for office management and documentation on computer. Also to teach them the use of internet to enhance their creativity

UNIT - I (12 Hrs)

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. Essential Components of Computer, Hardware – Input Devices – Keyboard, Printing Devices, Scanner, Bar Code Reader, Output Devices – Monitor, Printers, Plotters

UNIT - II (12 Hrs)

Internet, 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.

Starting MS WORD 2013, 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.

UNIT - III (12 Hrs)

Starting MS – Excel 2013, 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.

UNIT - IV (12 Hrs)

Features of Power Point 2013, 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.

Learning Outcomes:

- Learn about the computers, parts of computers, development of computers.
- Learn about the devices required for computers and knowledge of internet.
- Work with the basic features of Ms-Word. Display documents using various views. Work effectively with features that affect the page layout of the document. Create and modify tabs and tables. Insert and work with clip art and pictures.
- Learn Spreadsheets Cells and cell formatting, typing Formulas, Common Excel functions, Copying formulas, Absolute and relative referencing.
- Learn about creating, editing, modifying presentations.

Suggested Readings:

1. Ron Mansfield, Working in Microsoft Office, TMH
2. Sinha P. K., Computer Fundamentals, BPB

Reference Books:

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

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B.Sc.(Animation) – I Year I Semester
Theory Paper/Paper Code: BSA104
Basics of Animation and Design

Max. Marks: 80
Total no. of Hrs: 48

No. of Credits:04
Hrs/Week:04

Objective: To introduce the students with Animation and its concepts and to develop an approach for design and message conveying through Animation and other visual medium.

Unit I (12 Hrs)

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 their relationship,

Unit II (12 Hrs)

The Basics of traditional 2D animation, Introduction to the skill required for the animators, Learning to draw lines, circles, ovals, scribbles, jig jag (random) patterns etc, use of simple shapes. To draw drawings with the help of basic shape. An introduction on how the drawings is important for animation, Shapes and forms, About 2D and 3D shapes, Life drawing, Caricaturing-fundamentals, Exaggeration, Silhouette.

Unit III (12 Hrs)

An introduction of designing concepts. Elements of good design, rhythm, contrast, placement of element, balance, rule of third, optimal use of media etc. Need for design, Concepts and theories of good designing. Methods of designing – Exploring, redefining, managing and prototype.

Unit IV (12 Hrs)

Designing for different needs- Designing for industry, designing for visual art (Graphic, web and Animation), Designing for a process, designing for manufacturing and designing for product and service.

Text Books:

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

2. Design: Works from Seven Los Angeles Entertainment Designers. by Harold Belker, Steve Burg,
3. Survival kit for animators –Sir Willium Richards 4-Creative Illustations-Andrew Loomis

***Latest editions of all the suggested books are recommended.**

Learning Outcomes:

- The student will get a brief of animation history and visual arts forms
- The student will get knowledge of traditional 2D animation and simple shapes drawings.
- Students will learn the importance of Drawings for animation.
- Students will get an overview of Designing concepts
- Students will understand the designing for different industrial needs.

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B.Sc.(Animation) – I Year I Semester
Theory Paper/Paper Code: BSA105
Graphic Design –I (Corel Draw)

Max. Marks: 80
Total no. of Hrs: 48

No. of Credits:04
Hrs/Week:04

Objective: To give the Advance knowledge of vector art to the students.

Unit I (12 Hrs)

What is the graphic design, objective of designing, differentiate between raster and vector graphics, importing art work, Getting Started with Corel Draw X7, Explore the Corel Draw X7 Interface, Customize the Workspace.

Unit II (12 Hrs)

Set Up a Drawing Page, Draw Shapes, Draw Lines, Bezier, Curves, Shape Tool, Include Objects. Working with Fills, Pattern, differentiate between RGB and CMYK colour and colour settings.

Unit III (12 Hrs)

Group and ungroup object, Masking Objects. 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.

Unit IV (12 Hrs)

Create a Table, Modify a Table, Format a Table, and Apply Artistic Effects to Objects. Convert Bitmap Images to Vector Images, Work with Print Styles, Interactive effect tool: Transparency, Extrude, Envelop, Blend, Drop Shadow. 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.

Text Books:

1. Corel DrawX7 The Official Guide Gary David Boutan
2. Straight to the point Corel DrawX7- Dinesh Maidanani
3. Coral DrawX7 in simple steps- Kogent solution

***Latest editions of all the suggested books are recommended.**

Learning Outcomes:

1. About the designing, raster and vector shapes, CorelDRAW X7 software, changing the document setup, and tool panel.
2. Set the document for designing, drawing and colors tools used in designing.
3. Student will learn typography
4. Complete table tool properties, using raster and vector effect.
5. Using layers, master layer concept, file formats, export file.

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B.Sc.(Animation) – I Year I Semester
Practical/Paper Code: BSA103P
Information Technology - (LAB)

Max. Marks: 50
Total no. of Hrs: 24

No. of Credits:01
Hrs/Week:02

Information Technology - (LAB)

- 1.Introduction to Windows, Note pad, Paint brush, Word Pad, calculator.
2. Introduction to Internet Web Browser, Search Engine, Creating E-Mail account, Attaching Documents, Sending and Receiving E-Mails, Bookmarks, favorites, internet configure.
3. Starting MS WORD 2007, Creating and formatting a document, Changing fonts style and size, Table
- 4.Creation and operations, Autocorrect, Auto text, spell Check, Inserting objects, Page setup, Page Preview, Printing a document, Mail Merge.
- 5.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 setup, Print Preview, Printing Worksheets.
- 6.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,
7. 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.
8. Starting MS – Access 2007 – Creating tables, queries, forms, reports, pages, macro, module.

Learning Outcomes:

After the completion of course student will learn knowledge of computer hardware and software, use of internet, MS-office etc.

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B.Sc.(Animation) – I Year I Semester
Practical/Paper Code: BSA104P
Basic Animation (LAB)

Max. Marks: 25
Total no. of Hrs: 24

No. of Credits:01
Hrs/Week:02

B.Sc.(Animation) – I Year I Semester
Practical/Paper Code: BSA104P
Graphic Design: CorelDraw & Illustrator (LAB)

Max. Marks: 25
Total no. of Hrs: 24

No. of Credits:01
Hrs/Week:02

CorelDraw & Illustrator Lab

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

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B.Sc. (Animation) I Year I Semester
(AECC-I)(Theory Paper) / Paper-Code: BSA106
ENVIRONMENTAL STUDIES

Max. Marks: 50/20
Hrs/Week: 02

No. of Credits: 2
No. of Hours: 30

Unit I: Ecosystem, Biodiversity & Natural Resources (15Hrs)

1. Definition, scope & importance of environmental studies.
2. Structure of Ecosystem – Abiotic & Biotic components producers, consumers, decomposers, food chain, food webs Ecological pyramids.
3. Function of an Ecosystem: Energy flow in the Ecosystem (Single channel energy flow mode)
4. Definition of Biodiversity, Genetic, Species & Ecosystem diversity, Hot-spots of Biodiversity, Threats to Biodiversity, conservation of Biodiversity (Insitu&Exsitu)
5. Renewable & Non – renewable resources, Brief account of Forest, Mineral & Energy (Solar Energy & Geothermal Energy) resources.
6. Water Conservation, Rain water harvesting & Watershed management.

Unit II: Environmental Pollution, Global Issues & Legislation (15Hrs)

1. Causes, Effects & Control measures of Air Pollution, Water Pollution
2. Solid Waste Management
3. Global Warming & Ozone layer depletion
4. III – effects of Fire-works
5. Disaster management – floods, earthquakes & cyclones
6. Environmental legislation
- a) Wild life Protection Act b) Forest Act c) Water Act (d) Air Act
7. Human Rights
8. Women and Child welfare
9. Role of Information technology in environment and human health

Fields Study: (05 Hours)

- . Pond Ecosystem
- . Forest Ecosystem

Reference Books:

- . Environmental Studies – from crisis to cure – by R. Rajagopalan (Third edition) Oxford University Press
- . Text book of Environmental Studies for undergraduate courses (Second Edition) by ErachBharucha
- . A text book of Environmental Studies by Dr. D. K. Asthana and Dr. MeeraAsthana

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B.Sc. ANIMATION

Semester II

CHOICE BASED CREDIT SYSTEM

Sr. No.	Course Code	SUBJECTS	Classes		Credits	Evaluation Scheme			Total
			T	P		Internal	External MIN	MAX	
01	BSA-201	English-II	4	0	4	20	28	80	100
02	BSA-202	Second Language	4	0	4	20	28	80	100
03	BSA-203	Drawing for Animation	4	0	4	20	28	80	100
04	BSA 204	Graphic Design – II (Photoshop)	4	0	4	20	28	80	100
05	BSA 205	Principles and Techniques of Animation	4	0	4	20	28	80	100
06	BSA203P	Drawing for Animation LAB	0	2	1	0	20	50	50
07	BSA 204P	Graphic Design – II Adobe Photoshop (LAB)	0	2	1	0	20	50	50
08	BSA 205P	Principles and Techniques of Animation (LAB)	0	2	1	0	20	50	50
09	AECC-II	Basic Computer Skills	2	0	2	0	20	50	50
	TOTAL		22	6	25	100	220	600	700

B.Sc.(Animation) – I Year II Semester
Theory Paper/Paper Code:BSA201
ENGLISH

Max. Marks: 80
Total no. of Hrs: 48

No. of Credits:04
Hrs/Week: 05

Unit -1(12 hrs)

Poetry

Kalahandi -- Jagannath Prasad Das

The Night of the Scorpion – NissimEzekeil

Unit -2(12 hrs)

Prose

The Cut –off – ChetanBhagat

The Need for Excellence – N.R .Narayana Murthy

Let's Go Home -- KewlianSio

Unit -3(12 hrs)

MeghnadSaha – Enakshi Chatterjee

A Journey with My Father – Rabindranath Tagore

Matsyaganddhi – M. Sajitha (One Act Play)

Unit -4(12 hrs)

Grammar and Composition

Grammar:

Active and Passive Voice, One-Word substitutes, Question Tags

Composition:

Descriptive Writing (Things and Place)

Grammar and Composition

Grammar:

Commonly confused words, Prepositions, Prefixes and Suffixes

Composition:

Letter Writing

Reference Book:

Skills In English - By E. Suresh Kumar, B. YadavaRaju, C. Murali Krishna

B.Sc.(Animation) – I Year II Semester
Theory Paper/Paper Code:BSA203
DRAWING FOR ANIMATION

Max. Marks: 80
Total no. of Hrs: 48

No. of Credits:04
Hrs/Week: 04

OBJECTIVE: To introduce concept of drawing and sketching to the students and to give them required expertise for representing their ideas with the help of drawing.

Unit I (12 Hrs)

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

Unit II (12 Hrs)

Background elements, trees, mountains, clouds, water bodies, meadows, buildings, science fiction story backgrounds, backgrounds of mythological stories perspective drawing Lights and shadows day night scenes. Concept of layers, Back ground, stage, foreground elements, Layout designs.

Unit III (12 Hrs)

MALE AND FEMALE ANATOMY- Structure of male and female body, comparative study of male and female body. Draw human body from 2d and 3d basic shapes.

Body parts:- Head, Torso, hands, legs, foot and palm.

Face:- Different elements of face and their distribution on face. Study of mouth, nose, eyes and ears.

Unit IV (12 Hrs)

Child, Animal and cartoon study- Understanding child's figure, proportion and construction of child body, face, chubbiness, hand, feet and gestures. Animals from basic forms, understanding motion and grace of animals, turning animals to character, face, legs, tails, perspectives. Understanding cartoon characters, drawing from basic shapes, line of action, distortion of proportion, cartoon faces, eyes, mouths, hairs, nose, hands, feet, gestures and poses.

Text books-

1. A handbook of Perspective-Stephen M. Ship Cartoons- Persten Blair
2. Human anatomy by-Victor Ferard
3. Figure drawing made easy by-Aditya Chari

Learning Outcomes:

1. Student will learn the importance of drawing for animation and will practice drawing with the help of basic shapes.
2. Students will practice creation of backgrounds for animation movies and will learn to draw various elements of backgrounds for different genre of stories.
3. Students will study perspective drawing using light and shadow. They will also get aware about layers and their uses in layout designing.
4. Anatomy drawing is very essential for character development and movements. Students learn details about human anatomy and emphasize on proper proportions of various parts of human body.
5. Students get familiar with anatomy of children, cartoons and animals which are essential part of animation movies. Students also learn about line of action, distortion and adaptation of figure to characters

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B.Sc.(Animation) – I Year II Semester
Theory Paper/Paper Code:BSA204
GRAPHIC DESIGN – II (PHOTOSHOP)

Max. Marks: 80
Total no. of Hrs: 48

No. of Credits:04
Hrs/Week: 04

Objective: To give the advanced knowledge of image editing and design.

Unit I (12 Hrs)

Photoshop and its interface, Navigation and All tools, working with basic selections, advancedSelections-1(on the basis of channels, colour range, extract, filter etc), Exercises on selections, Quick Masks, Layer Mask, Vector Mask, Layers & Layer Blending.

Unit II (12 Hrs)

Color theory, basics of color, fill type, layer style, adjustment layer, group layer, Layer menu, Color adjustment, Image menu.Brush, Pencil, Color replacement tools, Clone tool, Smudge tool, Patch tool, Eraser etc. Digital painting, make a natural scene (winter), make a natural scene (summer).Make digital painting of a celebrity & photo retouching.

Unit III (12 Hrs)

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

Unit IV (12 Hrs)

Design motifs, tribal art, create an animal character, "Plan a story of that character & Make itsbackgrounds in three/four frames", Make posters on nature/earth, Matte Painting, Composition, Creating images for the web: Exporting images from Photoshop.

Text Books:

1. Adobe Photoshop CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.

Reference Books:

1. Teach Yourself Visually - Adobe Photoshop CS6 by Mike Wooldridge (Wiley publishing).
2. Adobe Photoshop CS6 Bible by Steve Johnson.
3. Adobe Photoshop CS6 Bible by Lisa Danae Dayley & Brad Dayley.

***Latest editions of all the suggested books are recommended.**

Learning Outcomes:

- Student will learn to introduce to Graphic Design & image editing software Photoshop. Student makes a selection using different types of selection tools. Students will learn to use layers in Adobe Photoshop.
- Student will gain knowledge to retouch the image using Image Correction & Adjustment Layer. Student will learn create a simple animation in Photoshop.
- Student learn to design buttons using Layer effects / filters. Student will create a digital painting using various (Clone, Smudge, Patch, Eraser, Brush) tools & Special Effect.
- Student will create Graphic Design Advertisement with text.
- Student introduced with Web Designing & will create Web pages using slicing tools.

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B.Sc.(Animation) – I Year II Semester
Theory Paper/Paper Code:BSA205
PRINCIPLES AND TECHNIQUES OF ANIMATION

Max. Marks: 80
Total no. of Hrs: 48

No. of Credits:04
Hrs/Week: 04

OBJECTIVE: To familiarize the students with various techniques of animation and make them acquainted with the principles of animation which they have to follow during their course.

Unit I (12Hrs)

Basic principles of animation, Timing, Squash and Stretch, Anticipation, Straight ahead and pose to pose. Follow through and overlapping action. Slow in and slow out, Arcs, Secondary action, Exaggeration, Solid drawing, Staging, Appeal, Mass and weight, Character acting, Volume, Line of action, Path of action.

Unit II (12Hrs)

Key framing and in-betweening cleanups. Straight forward and frame by frame animation, Walk cycles of animal and human, Cutout animation technique, Introduction to the equipment, the animators drawing tools, The animation table, Line testers, The Exposure sheet(X sheet)"

Unit III (12Hrs)

Caricaturing the Action, Motion studies, drawing for motion. The body language, Re-defining the drawings. Acting for animation facial expressions Communication by body language and gesture. Communication by voice.

Unit IV (12Hrs)

Clay animation, Flip Books. Stop motion techniques. White board stop animation, Cut out paper animation, Animation set designing (Table top). Clay-character modeling, Table top Model lighting, Clay Animation, Technique of working in team.

Text Books:

1. Survival kit for animators -Sir Willium Richards
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
5. Animation process by Persten Blair.

***Latest editions of all the suggested books are recommended.**

Learning Outcomes:

- Students will get a brief about basic principles in animation.
- Students will understand the application of basic principles in animation.
- Students will understand the various processes and technologies used in creation of Animations.
- Students will understand the various drawing techniques used in classical animation.
- Students will learn to create short animations using stop motion and non conventional techniques.

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B.Sc.(Animation) – I Year I Semester
Practical/Paper Code: BSA203P
Drawing for Animation (LAB)

Max. Marks: 50

Total no. of Hrs: 24

No. of Credits:01

Hrs/Week:02

B.Sc.(Animation) – I Year I Semester
Practical/Paper Code: BSA204P
Graphic Design – II Adobe Photoshop (LAB)

Max. Marks: 50

No. of Credits:01

Total no. of Hrs: 24

Hrs/Week:02

Adobe Photoshop (LAB)

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

Learning Outcome:

1. Design layouts for web pages, Paper Adverts, Broachers, CD Covers and package designing
2. Event and Exhibition stall Designs,
3. Pop Ups
4. Touch Ups
5. Color corrections
6. Digital Paintings and Drawings.
7. Converting B/W photo to color.

B.Sc.(Animation) – I Year I Semester
Practical/Paper Code: BSA205P
Principles and Techniques of Animation (LAB)

Max. Marks: 50

No. of Credits:01

Total no. of Hrs: 24

Hrs/Week:02

1. Animation exercises on following principles:
 - a. Squash and Stretch,
 - b. Anticipation,
 - c. Staging,
 - d. Straight ahead and pose to pose,
 - e. Follow through and
 - f. overlapping action,
 - g. slow in and slow out,
 - h. Arcs,
 - i. Secondary action,
 - j. Timing,
 - k. Exaggeration,
 - l. Solid drawing,
 - m. Appeal,
 - n. Mass and weight,
 - o. Character acting,
 - p. Volume.

2. Create a white board animation with stop motion technique.
3. Create a Paper cut out Animation
4. Clay Modeling of a character and its prop
5. Create a short animation with clay characters.

Learning Outcome:

It will train students to create various short animations using the basic principles of animation. Also, the student will learn various non-conventional animation techniques.

B.Sc.(Animation) I Year II Semester
AECC-II – (Theory Paper)/Paper Code: BSA206
BASIC COMPUTER SKILLS (BCS)

Max. Marks: 50

No. of Credits: 2

Hrs/Week: 02

No. of Hours: 30

Unit-I:

UNDERSTANDING OF COMPUTER AND WORD PROCESSING: (15Hrs)

Knowing computer: What is Computer, Basic Applications of Computer; Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Applications of ICT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.

Operating Computer using GUI Based Operating System:

What is an Operating System; Basics of Popular Operating Systems; The User Interface, Using Mouse; Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows; Using help; Creating Shortcuts, Basics of O.S Setup; Common utilities.

Understanding Word Processing: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document.

Unit – II

Spread Sheet, Presentation Software & Introduction to Internet, www and Web Browsers: (15Hrs)

Using Spread Sheet: Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet, printing of Spread Sheet.

Basics of presentation software: Creating Presentation; Preparation and Presentation of Slides; Slide Show; Taking print outs of presentation/handouts.

Introduction to Internet, WWW and Web Browsers:

Introduction to Internet: Basic of Computer networks; LAN, WAN; Concept of Internet; Applications of Internet; connecting to internet; What is ISP; Knowing the Internet; Basics of internet connectivity related troubleshooting.

World Wide Web: Search Engines; Understanding URL; Domain name; IP Address; Using e-governance website. Web Browsing: Software, Communications and collaboration: Basics of electronic mail; Getting an email account; Sending and receiving emails; Accessing sent emails; Using Emails; Document collaboration; Instant Messaging; Netiquettes.

SUGGESTED READINGS:

1. Introduction to Computers, Peter Norton, McGraw Hill, 2019.
2. Using Information Technology, Brian K Williams, Stacey C. Sawyer, Tata McGraw Hill.

Web Resources:

1. <https://online.stanford.edu/courses/soe-yccscs101-sp-computer-science-101>
<https://www.extension.harvard.edu/open-learning-initiative/intensive-introduction-computer-science>

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QUESTION PAPER PATTERN
For B.Sc. (Animation) I & II Semester 2021-22

Class & Sem.	I year I Sem.
Subject	Graphics Design
Annual/BL	Regular
Time	3 Hours
Max/Min	Marks 80/32

Date	12-11-2020
Time	8:30 to 10:30PM
Code No.	BSA103
Course	B.Sc. Animation
Roll No.	1062-21-475-900

Section- A

Short Questions

I Answer any four (4) of the following all questions in 50 words 5X4= 20 Marks

Unit-1

Unit-2

Unit-3

Unit-4

Choose from any of the above unit

Section- B

Essay Questions

II Answer all the questions in 150 words

4X15= 60 Marks

1. Unit-1

Or

Unit-1

2. Unit-2

Or

Unit-2

3. Unit-3

Or

Unit-3

4. Unit-4

Or

Unit-4

B.Sc. ANIMATION

Semester III

CHOICE BASED CREDIT SYSTEM

Sr. No.	Course Code	SUBJECTS	Classes		Credits	Evaluation Scheme			Total
			T	P		Internal	External MIN	MAX	
01	BSA-301	English-III	5	0	4	15	14	35	50
02	BSA-302	Graphics under C	5	0	4	15	14	35	50
03	BSA-303	Audio & Video- Editing: Tools & Technology	4	0	4	15	14	35	50
04	BSA 304	Animation and Interactivity	4	0	4	15	14	35	50
05	BSA 305	Production Process of 2D Animation	4	0	4	15	14	35	50
06	BSA-302P	Graphics under C Lab	0	2	1	0	13	25	25
07	BSA 303P	Audio & Video- Editing Lab	0	2	1	0	13	25	25
08	BSA 304P	Animation & Interactivity Lab	0	2	1	0	20	50	50
09	SECC-I	Python-I	2	0	2	0	20	50	50
	TOTAL		23	4	25	75	116	275	350

B.Sc.(Animation) II Year III Semester
(Theory Paper)/Paper Code: BSA302
Graphics under C

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

Objective: To get acquainted with the basic elements of computer graphics so that the students may draw and create graphics elements using computer programs using programming languages.

UNIT I:

UNIT II:

UNIT III:

UNIT IV:

Text Book:

- 1) Graphics Under C by Yashavant Kanetkar - BPB Publications
- 2) Mastering Graphics Programming in 'C' by Sudhir Dawra - FireWall Media

B.Sc.(Animation) II Year III Semester
(Theory Paper)/Paper Code: BSA303
Audio & Video-Editing: Tools & Technology

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

Objective: To give technical skills of audio and video editing to the students so that they may edit and compose sounds and videos as per their need.

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.

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.

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.

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.

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.

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 CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.

Reference Book:

1. Film Editing: Great Cuts Every Filmmaker and Movie Lover Must. Know Author: Gael

***Latest editions of all the suggested books are recommended.**

Learning Outcome:

- ❖ Student will learn sound editing for songs and understand various digital audio formats.
- ❖ Student will gain skill for recording & mixing with song.
- ❖ Student will learn special effect for audio and understand the loops, play lists, markers & regions.
- ❖ Student will be introduced to video editing software & edit videos for movie / presentation and understand various digital video formats.
- ❖ Student will learn special effect for movie like Star trek transporter effect, Blurring a part of an image, Ghost effect, Highlighting a part of an image etc.

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B.Sc. (Animation) II Year III Semester
(Theory Paper)/Paper Code: BSA304
Animation and Interactivity

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

OBJECTIVE- Educating the student's most versatile and widely used tool for 2d animation.

Unit I

Flash workflow & Workspace, Introduction 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.

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.

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, Convert animation on the stage into a movie clip, Duplicate symbols, Edit symbols.

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. USING timeline

effects, Twinned Animation, Special effects, Filters and animation of filters, filter libraries, working with text, working with Sound, Working with video.

Unit V

Interactivity in Adobe Flash, Buttons and their use, use movie clips with button, introduction to action script 2 and 3, timeline control, using small scripts for limited interactivity. Preparing a self portfolio using Adobe Flash.

Text Books:

1. Adobe Flash Professional CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
2. Flash + after effects by Chris Jackson (Focal press publication).

Reference book:

1. Flash character animation: applied studio techniques By Lee Purcell (Sams publishing).
2. Adobe Flash Catalyst CS6 Classroom in a Book (Author: Adobe Creative Team).

Learning Outcome:

- Students get familiar with workspace of Adobe Flash. They begin to start working on projects and files, learn the properties of documents, templates etc.
- Students learn and practice drawing module of Adobe Flash in this unit. They learn various drawing tools available in Adobe Flash.
- Symbols play essential role in working with Adobe Flash, this unit emphasize on various type of symbols and their uses. Difference between Symbols and Groups also make clear to the students.
- This unit deal with the Animation and its tools in Adobe Flash. Students get familiar with Tweening and Frame by Frame animation. They learn about exporting and Importing videos in Adobe Flash.
- This unit deal with interactivity in the Adobe Flash. Students learn about Action Script, Buttons and Control over their Flash contents with scripts.

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B.Sc. (Animation) II Year III Semester
(Theory Paper)/Paper Code: BSA305
Production Process of 2D Animation

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

OBJECTIVE- To guide the students about the complete process of 2D Animation production as per industry practices.

Unit I

An introduction to 2D animation production pipe line, various phases of 2D production pipeline (pre-production, production and post-production), Story writing:- Sources of story, story line, adaptation of story. Script Writing:- Role of script, why a script is needed, expanding story as script.

Unit II

Character designing, characteristics of a character, props, kind of characters, assets of character, creating a model chart for a character, importance of model chart , background and layouts, break down a scene in to layers as per need.

Unit III

Visual story boards, Introductions to cameras, camera angles, Kinds of shots, Camera angles, movement of the camera, vertical panning, horizontal panning, Tilts, Truck in and Truck outs, Audio for animation story, Voice Over and Back ground music, Animatic and its role.

Unit IV

Production Process:- Techniques for 2D animations, cut-out animation, Frame by frame animation, straight forward animation, Key framing, in-between, clean ups, scanning, tracing and coloring (ink and paint), tweening animation, cut out characters and their animation, facial animation, lip sync and body movement. Scene and shot management.

Unit V

Rendering in Adobe flash, video formats and video export, creating effects in flash, sound synchronization, compositing of shot and scenes in Adobe Premiere, adding title and credits, Final rendering and publishing on line and on CD.

Text Books:

1. Flash character animation: applied studio techniques By Lee Purcell (Sams publishing).
2. The Complete Book of Scriptwriting By-J. Michael Straszynski
3. From pencil to pixel by Tony White
4. Animation process by Persten Blair.

***Latest editions of all the suggested books are recommended.**

Learning Outcome:

- Stories are the basic requirement for an Animation. This unit let the student to explore their writingskill. They are taught about various type of the stories, contents of the story, sources for story and structure of the story.
- In this unit students are guided for production of Animation and its various stages such as drawing, scanning, tracing, coloring and character animation.
- Good characters are required to give proper shape to a story. This unit elaborate the designing of characters as per the need of story.
- Story boards are essential when a group work on a project.
- This unit throw light on importance and different types of story boards.
- Students also learn to create appropriate voice over and animatic with the fusion of story board and sound track.

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B.Sc.(Animation) II Year III Semester
Practical Paper Code: BSA302P
Graphics under C Lab

Max. Marks: 25
Hrs/Week: 02

No. of Credits: 1
No. of Hours: 24

1. Write a Program in C to Draw shapes
2. Write a Program in C to create a Bar chart
3. Write a Program in C to create a Pie chart
4. Write a Program in C to animate a car /Moving car
5. Write a Program in C to create a 3D bar chart
6. Write a Program in C to display a Smiling face animation
7. Write a Program in C to display Captcha
8. Write a Program in C to display concentric circles (Circles in circles)
9. Write a Program in C to show number Countdown
10. Write a Program in C to display a Sine Wave

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B.Sc.(Animation) II Year III Semester
Practical Paper Code: BSA303P
Audio & Video- Editing Lab

Max. Marks: 25
Hrs/Week: 02

No. of Credits: 1
No. of Hours: 24

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

Learning Outcome:

- ❖ Students learn to record, edit and publish audio for animation.
- ❖ They also learn the techniques of video editing with various tools.

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B.Sc.(Animation) – II Year III Semester
Practical Paper Code: BSA305P
Animation and Interactivity LAB

Max. Marks: 25

No. of Credits:01

Total no. of Hrs: 24

Hrs/Week:02

- Drawing with flash
- Using drawing tools in Adobe Flash
 - Line tool, Shape tool, pencil, brushes, fills, stokes, gradient.
- Symbols: - Movie Clip and graphic
- Trace the pencil drawings and reference drawing.
- Simple object animations in Flash.
- Animate text and apply filters and effects.
- Animated web banners.
- Frame by frame animations (Butter fly, Bird fly, biped walks, quadruped walks).
- Cut out animations (Character animations, lip-sync animation, walks, body movements with dialogues).
- Create a short animation of lip sync, body movement and character interaction.
- Experiments with interactivity create button symbols and explore your creativity with them.

Learning Outcome:

This Lab allow students to practice all the contents they learn in classes of BSA 306, they practice various tools and techniques. They are given with assignments and after completing these assignments they feel confident as a skilled and creative artist.

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B.Sc. ANIMATION

Semester IV

CHOICE BASED CREDIT SYSTEM

Sr. No.	Course Code	SUBJECTS	Classes		Credits	Evaluation Scheme			
			T	P		Internal	External MIN	MAX	Total
01	BSA-401	English-IV	5	0	4	15	14	35	50
02	BSA-402	Python Graphics	5	0	4	15	14	35	50
03	BSA-403	3D Max Modeling	4	0	4	15	14	35	50
04	BSA 404	Animation in 3D Max	4	0	4	15	14	35	50
05	BSA 405	2D/3D Animation Project	0	4	4	0	20	50	50
06	BSA-402P	Python Graphics - Lab	0	2	1	0	13	25	25
07	BSA 403P	Autodesk 3D Max - LAB	0	2	1	0	13	25	25
08	BSA 404P	Modeling - ZBrush - Lab	0	2	1	0	20	50	50
09	SECC-II	Python-II	2	0	2	0	20	50	50
	TOTAL		23	4	25	60	120	290	350

B.Sc. (Animation) II Year IV Semester
(Theory Paper)/Paper Code: BSA402
Python Graphics

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

Objectives: The course will introduce the various aspects of Python programming and basics of computing using NumPy and graphics using PyOpenGL. The course assumes that a student is already familiar with one programming language (such as C) and basics of open graphics library (OpenGL).

UNIT I:

UNIT II:

UNIT III:

UNIT IV:

Text Book:

- 1) **Python Graphics** by B.J. Korites – Apress publications
- 2) Python Programming (3 books in 1) by Ryan Turner

Learning Outcomes

- Explain what we mean by object-oriented programming.
- Apply the fundamental concepts of computer graphics in a computer program.
- Create objects in programs and use methods to perform graphical computations.
- Write simple interactive graphics programs using objects available in the graphics module.
- Read and write programs that define functions and use function calls and parameter passing in Python.

B.Sc. (Animation) II Year IV Semester
(Theory Paper)/Paper Code: BSA403
3D Max Modeling

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

Objective: To give the basic knowledge of 3D modeling in max.

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.

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.

Unit III

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

Unit IV

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

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.

Text Books:

1. 3ds Max 2016 Bible by Kelly Murdock (John Wiley & Sons).
2. 3ds max a step by step approach by Kurt Wendt.
3. 3ds Max 2016 Architectural Visualization - Intermediate to Advanced by Brian L .Smith.

***Latest editions of all the suggested books are recommended.**

Learning Outcome:

- ❖ Learn concept of 3dsmax viewports, shortcut keys, workspace of max.
- ❖ Learn basic modeling with basic geometry.
- ❖ Learn 2D shapes in max, and object modeling using poly tools.
- ❖ Learn organic modeling.
- ❖ Learn modeling with modifiers.

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B.Sc.(Animation) II Year IV Semester
(Theory Paper)/Paper Code: BSA403
Animation in 3D Max

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

Objective- To give the knowledge of texturing, lighting, camera movement, animating objects and characters in 3D Max.

Unit I

Advanced 3DS Max, Modeling 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.

Unit II

Introduction to rendering, scan-line 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.

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.

Text Books:

1. 3ds Max 2016 Bible by Kelly Murdock (John Wiley & Sons).
2. 3ds max a step by step approach by Kurt Wendt.
3. 3ds Max 2016 Architectural Visualization - Intermediate to Advanced by Brian L. Smith.

***Latest editions of all the suggested books are recommended.**

Learning Outcome:

- Learn basic texturing and UV unwrapping on objects.
- Understand the rendering process of 3D Max.
- Learn to illuminate and animate the modeled scene with different types of lights and cameras.
- Learn to rig biped characters.
- Create basic key frame animations using particle systems.

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**B.Sc. (Animation) II Year IV Semester
(Project Work)/Paper Code: BSA404
2D/3D Animation Project**

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

2D/3D ANIMATION PROJECT WORK

Student will create and submit a short 2D/3D Animation film individually or in group under the supervision of project guide. This project will be evaluated by a panel of internal faculty members as well as by external examiner. The evaluation scheme is as follow:-

INTERNAL/ EXTERNAL EVALUATION-

Attendance	Presentation	Concept and its execution	Viva	Total
10	10	20	10	50

Learning Outcome:

In this project students produce a short 2D/3D animation movie individually or in group. This output serve as showcase at the time of their Interviews.

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B.Sc.(Animation) – II Year III Semester
Practical Paper Code: BSA402P
Python Graphics LAB

Max. Marks: 25

No. of Credits:01

Total no. of Hrs: 24

Hrs/Week:02

1. Simple Graphics Programming
2. Graphics Windows: Coordinate Systems
3. GraphWin Objects
4. Example Program Using Coordinate Transformation
5. Graphics Objects
6. Point Methods
7. Line Methods
8. Circle Methods
9. Rectangle Methods
10. Oval Methods
11. Polygon Methods
12. Text Methods
13. Entry Objects
14. Displaying Images
15. Generating Colors
16. Interactive Graphics
 1. Mouse Clicks
 2. Handling Textual Input

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B.Sc. (Animation) – II Year III Semester
Practical Paper Code: BSA403P
Autodesk 3D Max LAB

Max. Marks: 25

No. of Credits:01

Total no. of Hrs: 24

Hrs/Week:02

- ❖ 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.

Learning Outcome:

This lab based on BSA401, BSA406 student will learn to use 3ds Max design to create photo-realistic renderings and animations. They will also learn render and lighting techniques in 3D Max.

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B.Sc.(Animation) – II Year III Semester
Practical Paper Code: BSA404P
Modeling - ZBrush LAB

Max. Marks: 25

No. of Credits:01

Total no. of Hrs: 24

Hrs/Week:02

- ❖ Concept designing with the help of dyna-mesh.
- ❖ Creating base mesh with Z-sphere.
- ❖ Modeling a high poly model.
- ❖ Modeling with Z-brush
- ❖ Z-brush with Max and other 3d soft-wares
- ❖ Import an .obj file and add fine detailing, export various maps.

Learning Outcome:

Student does the modeling with the help of Dyna mesh, High poly modeling, Modeling with 3DS Max and Maya Models, Import an .obj file and add fine detailing, Creating base with Z-sphere.

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QUESTION PAPER PATTERN

Class & Sem.	II year III Sem.
Subject	Graphics Design
Annual/BL	Regular
Time	2 Hours
Max/Min	Marks 35/14

Date	12-10-2021
Time	8:30 to 10:30PM
Code No.	BSA103
Course	B.Sc. Animation
Roll No.	1062-21-475-900

Section- A

Short Questions

I Answer any four (4) of the following all questions in 50 words 5X3= 15 Marks

Unit-1

Unit-2

Unit-3

Unit-4

Choose from any of the above unit

Section- B

Essay Questions

II Answer all the questions in 150 words

4X5= 20 Marks

5. Unit-1

Or

Unit-1

6. Unit-2

Or

Unit-2

7. Unit-3

Or

Unit-3

8. Unit-4

Or

Unit-4

B.Sc.(Animation) II Year IV Semester
(Theory Paper)/Paper Code: BSA402
Computer Graphics

Max. Marks: 35
Hrs/Week: 04

No. of Credits: 4
No. of Hours: 48

Objective: To get acquainted about the basic elements of computer graphics so that the students may draw and create graphics elements using programming language.

UNIT I:

Painting and Drawing, Elements of 3D Graphics, Hardware and Software, Two-Dimensional Graphics, Pixels, Coordinates, and Colors, Pixel Coordinates, Real-number Coordinate Systems, Aspect Ratio, Color Models.

UNIT II:

Shapes: Basic Shapes, Stroke and Fill, Polygons, Curves, and Paths.
Transforms: Viewing and Modeling, Translation, Rotation, Combining Transformations, Scaling, Shear, Window-to-Viewport, Matrices and Vectors.

UNIT III:

Hierarchical Modeling, Building Complex Objects, Scene Graphs, The Transform Stack.

Java Graphics2D: Graphics2D, Shapes, Stroke and Fill, Transforms BufferedImage and Pixels.

HTML Canvas Graphics: The 2D Graphics Context, Shapes, Stroke and Fill, Transforms

UNIT IV:

3D Coordinates and Transforms: D Coordinates, Basic 3D Transforms, Hierarchical Modeling, Projection and Viewing, Many Coordinate Systems, The Viewport Transformation, The Projection Transformation, The Modelview, Image Textures