UG PROGRAM (4 Years Honors)
CBCS - 2020-21

B. Sc
Animation

Syllabus and Model Question Papers

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Note: BOS is to provide final soft copy in PDF and word formats and four copies of hard copies in bounded form to the office of Dean Academic affairs.

1. RESOLUTIONS OF THE BOARD OF STUDIES

Meeting held on: 22.01.2021.Time:10 A.MAt: Adikavi Nannaya University , RJY

Agenda:
1. Adoption of revised-common program structure and revising/updating course-wise syllabi(in the prescribed format) as per the guidelines issued by APSCHE.
2. Adoption of regulations on scheme of examination and marks/grading system of the University UG programs.
3. Preparation of Model question papers in prescribed format.
4. List of equipment/software requirement for each lab/practical
5. Eligibility of student for joining the course
6. Eligibility of faculty for teaching the course
7. List of paper-setters/paper evaluators with phone, email-id in the prescribed format

Members present:

Dr. P.Venkateshwara Rao	Chairman, Dept. of CSE,ANUR.
Dr. V.Persis	Member, Dept. of CSE,ANUR.
Mr. N. B. C. S. N.Murthy	Member , Dept. of CSE,Aditya Degree College, Kakinada
Mrs. P S V D Gayatri	Coordinator, Dept. of CSE,ANUR

Resolutions:
1. Resolved to adopt the revised-common program structure and revising/updating course-wise syllabi (in the prescribed format) as per the guidelines issued by APSCHE.
2. Resolved to adopt the regulations on scheme of examination and marks/grading system of the University UG programs.
3. Resolved to prepare the Model question papers in prescribed format.
4. Resolved to give the list of equipment/software requirement for each lab/practical
5. Resolved the eligibility of student for joining the course
6. Resolved the eligibility of faculty for teaching the course
7. Resolved to give the list of paper-setters/paper evaluators with phone, email-id in the prescribed format

2. DETAILS OF PAPER TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./ Week (Science: 4+2)	Credits (Science: 4+1)	Max. Marks Cont/ Internal/Mid Assessment	Max. MarksSem-end Exam
I	1	2D Graphic Design	T	4	4	25	75
		2D Graphic Design Lab	L	2	1	-	50
II	2	2D Animation	T	4	4	25	75
		2D AnimationLab	L	2	1	-	50
III	3	Introduction to3D	T	4	4	25	75
		Introduction to 3D Lab	L	2	1	-	50
IV	4	Web Technologies	T	4	4	25	75
		Web publishing Lab	L	2	1	-	50
	5	Advanced3D	T	4	4	25	75
		Advanced3DLab	L	2	1	-	50
V	6A	2D Design	T	4	4	25	75
		2D Design Lab	L	2	1	-	50
	7A	2D Game	T	4	4	25	75
		2D Game Lab	L	2	1	-	50
		OR					
	6B	3D iClone	T	4	4	25	75
		3D iClone Lab	L	2	1	-	50
	7B	3D Blender	T	4	4	25	75
		3D Blender Lab	L	2	1	-	50
		OR					
	6C	Game Level Design	T	4	4	25	75
		Game Level Design Lab	L	2	1	-	50
	7C	Game Programming and coding Lab	T	4	4	25	75
		Game Programming and coding Lab	L	2	1	-	50

Note: *Course type code: T: Theory, L: Lab, P: Problem solving

Note 1: For Semester–V, for the domain subject **ANIMATION**, any one of the three pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C. The pair shall not be broken (ABC allotment is random, not on any priority basis).

Note 2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate field skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the field skills embedded in the syllabus citing related real field situations.

Note 3: To insert assessment methodology for Internship/ on the Job Training/Apprenticeship under the revised CBCS as per APSCHE Guidelines.

➢ **First internship (After 1st Year Examinations):** Community Service Project. To inculcate social responsibility and compassionate commitment among the students, the summer vacation in the intervening 1st and 2nd years of study shall be for Community Service Project (the detailed guidelines are enclosed).

➢ **Credit For Course: 04**

➢ **Second Internship (After 2nd Year Examinations):** Apprenticeship / Internship / on the job training / In-house Project / Off-site Project. To make the students employable, this shall be undertaken by the students in the intervening summer vacation between the 2nd and 3rd years (the detailed guidelines are enclosed).

➢ **Credit For Course: 04**

➢ **Third internship/Project work (6th Semester Period):**
During the entire 6th Semester, the student shall undergo Apprenticeship / Internship / On the Job Training. This is to ensure that the students develop hands on technical skills which will be of great help in facing the world of work (the detailed guidelines are enclosed).

➢ **Credit For Course:12**

a. Proposed combination subjects: Computer Science , Film Studies[i.e., B.Sc.(ComputerScience, Animation, Film Studies)]
b. Student eligibility for joining in the course:
c. Faculty eligibility for teaching the course:
d. List of Proposed Skill enhancement courses with syllabus, if any:
e. Any newly proposed Skill development/Life skill courses with draft syllabus and requiredresources.

f. Required instruments/software/ computers for the course (Lab/Practical course-wiserequired i.e., for a batch of 15 students)

Sem. No.	Lab/Practical Name	Names of Instruments/Software/ computers required with specifications	Brand Name	Qty Required
1	2D Graphic Design Lab	**Art Studio Setup** 1. Light Box for 2D/Cartoon animation 2. Donkey chair(Drawing chair) 3. Pen Table / DigitizerTable – Wacom 4. Manqulars **Software's:** 1. Adobe Creative suite(CS / CC) Adobe Photoshop	Adobe	5
2	CompostingLab	**Visual Effects StudioSetup** 1. Green/Blue matteStudio 2. Still & Video camera(HD) 3. Tripod 4. Lights + Light Stand (minimum 4 cool lights) 5. Movable green/bluematte clothe (Height: 7feet X Weigh 8 feet) 6. Flex Box or extendedpower box (minimum 10feet)	Canon /Nikon	3
3	2D Animations Lab	**Animation Studio Setup** 1. Big mirror for capturethe facial expressions 2. Frame by frameanimation 3. Stop motion captureequipment (Stand + Camera) **Softwares:** 1. Toon boom 2. Adobe Creative suite(CS / CC) Adobe Photoshop Adobe InDesign	Adobe, US Animation	5

		Adobe Flash Adobe AfterEffects Adobe Premiere Adobe		
4	Web Publishing Lab	Dreamweaver Adobe Audition Adobe Lightroom	Adobe	5
5	Introduction to 3D Lab & Advanced 3D Lab	1. Autodesk – 2016 to2019 Autodesk Maya Autodesk 3Ds Max Autodesk Matchmovre Autodesk Arnold renderer for maya 2. Real flow 3. Z- Brush 4. Mudbox 5. Substance painter (Adobe) 6. Fume EFX 7. Rayfire 8. Ms- Office 9. Script writer	Auto Desk, Adobe	8

g. List of Suitable levels of positions eligible in the Govt /Pvt organizations
   Suitable levels of positions for these graduates either in industry/Govt organization like., technical assistants/ scientists/ school teachers., clearly define them, with reliable justification

S.No	Position	Company/ Govt organization	Remarks	Additional skillsrequired, if any
1	2D Artist	Cartoon studios		
2	Layout designer	Graphic Design Studio		
3	Advertisement maker	Advertisement industry		
4	3D Modeler	3D industry		
5	Story boardArtist	Film & Animation industry		
6	Animator	2D or 3D industry		
7	Composter	Visual effects industry		
8	Game Designer	Game industry		
9	Video & Audio editor	Film(or)Television(or)Entertainmen tindustry		
10	Trainer	Media School (or) College		

h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects

S.No	Company/ Govt organization	Position type	Level of Position			
1	Film Industry					
2	AnimationIndustry					
3	MedicalIndustry					
4	Media Industry					
5	Interior Designing					
6	AutomobileIndustry					
7	Photography Industry					
8	Web desing & DevelopmentIndustry					
9	Visual effects Industry					
10	GamingIndustry					
11	BankingIndustry					
12	EducationalIndustry					
13	PhotographyIndustry					

i. Any specific instructions to the teacher /paper setters/Exam-Chief Superintendent

B. Sc	ANIMATION

3. PROGRAM OBJECTIVES, OUTCOMES, CO-CURRICULAR ANDASSESSMENT METHODS

1. Aim and objectives of UG program in Subject:
   - Develop the skills on the Art & Animation
   - Working with upcoming concepts
   - Evaluate the projects and assignments developed/prepared by the students
   - Apply the filters and effects to get photorealistic and quality outputs

2. Learning outcomes of Subject (in consonance with the Bloom's Taxonomy):
   - Learning recent methods in print and designing works
   - Fundamentals of making process
   - Understand the Production pipeline(Pre-Production, Production & Post-Production)
   - Apply many techniques for quality outputs
   - Use different tools to build complex objects

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work

4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)
   A. Measurable
   - Seminar & Workshop on subjects relevant topics with students and industry experts
   - Group Discussion on subject relevant topics
   - Quiz program on each module
   - RVJ (Reflective Visual Journal) on the theory and particles
   B. General
   - Exhibition on the practical works
   - Outdoor/ Field study on their subject
   - Maintain a blog

5. Recommended Continuous Assessment methods:
   - Oral presentations
   - Self – reflective blogs
   - Peers and self assessment on outputs
   - Evidence of process and experimentation in response to artistic exercises

   Portfolios on outputs

1. **Details of course-wise Syllabus**

B. Sc	Semester: I	Credits: 4
Course: 1	2D Graphic Design	Hrs/Wk: 4

Aim and objectives of Course (Title of the course/paper):

- This course will study advanced topics in Graphic design. The focus will be onlearning recentmethods in print and designing graphic works.
  Learning outcomes of Course (in consonance with the Bloom's Taxonomy):
- Analyze the range of technologies in digital image acquisition andmanipulation
- Apply the fundamental principles of 2D computer graphics
- Develop, Document and Evaluate students graphics works within range ofmedia
- Create and demonstrate graphics works

Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I:
Multimedia: Introduction to multimedia - Multimedia system Requirements - - Multimedia application - Types of graphics - Difference between Raster Graphic & Vector Graphic and its uses- Graphic Design - Types of objects - Audio formats - Video formats - Image formats - Text document formats - Types of video editing - Types of printers - printing outputs.

UNIT II:
Introduction: Getting started with Photoshop - document dimension – Working with selections - Drawing toolbar - healing tool - clone stamp tool-Status bar-Photo-Ruler-Grid-Working with Colors-color mode-Resolution-Guide-Working with LayersNew layer-Delete layer- Working with quick mask -Applying filters-Adding and Manipulating type-Saving and printing images

UNIT III:
Illustrator: Getting started with Illustrator - Interface – Workspace – Tools – Menus – Working with paths – Pathfinder – Paths - Live Paint - Compound Path - Working with Objects and Symbols – Clip Mask - Working with type - Text Wrap – Types of Tools - Gradient – Working with Layers - Logos - Tracing images – Drawing – Effects, Filters and Style - Hotkeys – Saving & Printing – Export and Import - Save for web - Convert PDF

UNIT IV:
In design: Getting started – Introduction the workspace – Tools & Menus – Working with panels - Working with styles – Working with graphics – Working with Layer - Flowing Text – Working with Typography - Creating Table

UNIT V:
CorelDraw: Workspace Tour – Application window: Tools & Menus - CorelDraw terminology and concepts– Object; Drawing; Vector graphic - Artistic Test; Paragraph Test -Drawing Shapes - Working with objects - Filling Objects - Working with color - Changing the Transparency of objects - Working with pages and layout tools - Creating layers -Publishing web etc.

TEXT BOOKS:
1. Introduction to Multimedia and Its Applications (English, Paperback, Jain V. K.)Khanna Publishers
2. Master Adobe Photoshop, Illustrator, Premiere and After Effects by Wiley-dreamtechIndia Pvt. Ltd.
3. Adobe InDesign CC Classroom in a Book – Pearson

REFERENCES:
1. Adobe In Design CC Classroom in a Book (2017 release) 1st, Kindle Edition
2. Adobe Illustrator CC Classroom in a Book by Wood Brian (Author)
3. Adobe In Design CS6 Classroom in a Book by Adobe Creative Team
4. Corel DRAW X7: The Official Guide Book by Gary David Button

CO-CURRICULAR ACTIVITIES:
- Graphic assignments
- Seminar/Workshop on Graphic design role in the industry
- The student will demonstrate the graphic works with print
- Visiting the Graphic design Studios/House for getting the knowledge on theliveexperience
- RVJ (Reflective Visual Journal) on the theory and particles
- Group discussion on topics related to graphic industry

ASSESSMENT METHODS:
- Oral presentations
- Self-reflective blogs
- Practical production works
- Peers and self –assessment for output

B. Sc	Semester: I	Credits: 1
Course: 1(L)	**2D Graphic Design Lab**	Hrs/Wk: 2

Details of Lab syllabus: 2D GRAPHIC DESIGN
LABAAdobe Photoshop:

1. Create your visiting card

2. Create Title for any forthcoming film

3. Digital Matte Paint

4. Convert Black and White to Color

5. Convert Day mode to Night mode

6. Design Image manipulation

7. Smooth skin and remove blemishes & scars

8. Create a 3D pop-out effect

9. Create Textures

10.   Timeline Animation

Adobe Illustrator:
1. Advertisement
2. Digital Illustrations
3. Brochure
4. Packet Design(Toothpaste packet, Soap cover, any Food product)
5. Danglers for display
6. Menu cards
7. Calendar Design
8. Tracing image
9. Vehicle Design
10. Festival

Adobe Indesign:
1. Magazine A4 Size
2. Newspaper layout design & advertisements – Fine arts
3. Special Supplement
4. Different categories of Books
5. Info-graphics
6. Caricatures

Corel DRAW:
1. Create a paper ad for advertising of any commercial agency
2. Package Design
3. Corporate ID
4. Exhibition Layout
5. Oblers

MODEL QUESTION PAPER (Sem-end. Exam)

B. Sc DEGREE EXAMINATIONS
Semester - I
Course 1: 2D Graphic Design

Time: 3Hrs.   Max.Marks:75

Section -A
Answer any FIVE of the following Question   5X5 = 25M

1. Explain system requirements in details
2. Write about the Photoshop in detail
3. Brief about the illustrator
4. Write about the tools and menus
5. What is application window?
6. Explain about the video formats
7. Explain different color modes
8. How to change the objects to transparency

Section -B

Answer ALL the following Question   5X10 = 50M

9. A) what is multimedia and multimedia system

(OR)

B) Explain Raster and Vector Graphics

10. A) Explain Tool bar and menu bar in Photoshop

(OR)

B) What is layer and layer mask explain in detail

11. A) What is text and text wrap

(OR)

B) Write following question in details

a) Effects b) Filters c) Hotkeys d) style

12. A) what is graphics explain in detail

(OR)

B) Explain typography? Role in the industry

13. A) what is artistic test?

(OR)

B) What is publishing web in detail?

B. Sc	Semester: II	Credits: 4
Course: 2	2D ANIMATION	Hrs/Wk: 4

Aim and objectives of course: 2D ANIMATION
- Understand and Apply the symbols, animation keys
- Analyze the tweens, shapes and articulated motions, Navigation menus andinteractive movieclips
- Evaluate the developed project

Learning outcomes of course (in consonance with the Bloom's Taxonomy):
- Knowledge and utilize components to create interactivity and manipulate animationusingseveral animation tools and techniques in this course.

Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I:
What is Animation- Early examples of Animation- Stop Motion Photo Animation- Zoetrope- Thaumatrope – Cell and Paper Animation -Types of Animation - Facial expressions -Flash Overview-About Adobe Animate Interface -Menu Bar, Tools-Layers-Property Inspector-Timeline- Stage- Scene - File Formats: .fla, .swf – Library - Import tothe stage - Import to Library - Color Swatches -Grid, Guide & Rulers - Creating New Document - Working on Stage.

UNIT II:
Using Layers: About Layers - Create - Delete Layers, Rename Layers - Lock & Unlock Layers - Typeof Frames: Key fame - Blank Frame - Onion Skin – FPS – Symbols – Graphics - Movie Clip & Button– Tweening - Types of Tweens - Object & Merge Drawings-Gradient Color - Color Effects

UNIT III:
Filters, Shape Tween, Shape Hint Tween, About Mask, Layer Mask, Ease in and Ease out Animation, Working Frame - by - Frame Animations, Working on Tween Animation, Character creation - Animation - Creating Storyboard, Creating any Cartoon Character, Creating Background Scenes, Using Bone Setup Tool, Lip Movements, Adding Audio to Scene, Publish Movie, Publish Setting.

UNIT IV:
Online Frame Work - Types of E - learning's - ADDIE model for E-learning - Analysis and Design – Development – Implementation – Evaluation - Action Script, Interfaceof Action Script in Flash, Uses of Action Script, Event Handling, Using Code Snippets, Drag & Drop, Moving with Keyboard Arrows, Go to Frame and Stop, Play & Stop Sound Layout Creation - Timeline Actions- Creating Frame- Action Controlling Sound -Sound Controls– Video Controls- Handling Components- ApplyingBehavior.

UNIT V:
Action Script on Buttons, Movie Clips, Event Handlers, Create a Slide Show, Creating an Interactive Flash Game, Flash File Publishing, Export Options, Publish Settings from Flash to After Effects Working on Adobe After Effects, Export Flash to After Effects, Create Character Animation in After Effects, Export to Movie Format, Test Movie.

TEXT BOOKS:
1. The Animator's Survival Kit by Richard Williams, Straus & Giroux Pub. (U.S.A)
2. Flash Professional CC Class Room In a Book - Pearson

REFERENCE BOOKS:
1. The complete animation course by Chris Patmore -Baron's Educational Series. (NewYork)
2. Animation Unleashed by Ellen Bessen, Michael Weise Productions, 2008(U.S.A)
3. Draw Animation by Paul Hardman.

CO-CURRICULAR ACTIVITIES:
- Demonstrate or exhibit the graphics animation and school projects
- Seminar/workshop on E-Learning and 2D Animation
- Study tour to visit 2D animation production house

ASSESSMENT METHODS:
- Domain specific projects assessment
- Portfolios of 2D
- Reflective Visual Journal for the works

B. Sc	Semester: II	Credits: 1
Course: 2(L)	2D ANIMATION Lab	Hrs/Wk: 2

Details of Lab syllabus : 2D ANIMATION LAB

1. Creating Web Banners in Adobe Flash
2. Creating a Logo Animation in Adobe Flash
3. Creating Frame by Frame animation
4. Draw Cartoon Animation using reference.
5. Create Lip Sink to Characters
6. Using filters & Special effects
7. Create a scene by using Mask layers animation

E-Learning Lab:
8. Student Application form
9. Video Controlling
10. Audio Controlling
11. Start Drag and Stop Drag Actions
12. Interactive Keyboard Controls using Flash Action Script.
13. Interactive Flash Game.
14. Creating Character Animation in After Effects

MODEL QUESTION PAPER (Sem-end. Exam)
B. Sc DEGREE EXAMINATIONS
Semester - II
Course 2: 2D Animation

<u>Time: 3Hrs.</u>   <u>Max.Marks:75</u>

Section -A

Answer any FIVE of the following Question   **5X5 = 25M**

1. What is animation?

2. What is the use of symbols and graphics

3. What is filter and shape Tween

4. What is E – learning

5. Explain Action script

6. Explain menu bar in flash

7. What is FPS and explain the video formats

8. How to apply action script on buttons

Section - B

Answer ALL the following question   **5X10 = 50M**

9. A) What is layer and layer property
                    (OR)
   B) Explain the facial expression with drawing

10. A) what is Onion skin and blank frame
                    (OR)
   B) Write about the tweening and Gradient color

11. A) What is shape hit tween and shape
                    (OR)

   B) Explain the process of cartoon character designing

12. A) How to controls sound and video? In detail

                    (OR)

   B) What is action and timeline action

13. A) Write about the buttons and movie clips

                    (OR)

   B) How to create character animation in software

B. Sc	Semester: III	Credits: 4
Course: 3	INTRODUCTION TO 3D	Hrs/Wk: 4

Aim and objectives of Course (Title of the course/paper): INTRODUCTIONTO 3D

- Understand the virtual 3D space and how to build objects
- Create objects using primitive shapes and sub patch geometry
- Analyze the importance of file backup and management(projects setup)
- Evaluate the projects and assignments developed/prepared by the students

Learning outcomes of Course (in consonance with the Bloom's Taxonomy):

- Use these tools to build complex objects then learn the basic 3D rendering tools and techniques including camera settings. Expose to all relevant aspects of CG creating with 3DSoft wares.

UNIT I:

Introduction to the interface of Maya, Menu set, Main Menu Bar, Panel Menu, The Channel Box and Layer Editor, Shelf, Hotkeys, Viewport, Attribute Editor, Hot Box, Setting and Preferences, New, Set Project, About Polygons, Creating Polygon primitives, Cameras, Edit Selections: Selection, Move, Scale, Rotate, Lasso tools - Creating New Shelf, Duplicating objects, Pivot points, Snapping, Outline.

UNIT II:

NURBS, CV, EP, Bezier, Pencil Curve tools. Props Modeling - Modeling a high poly model, Mesh Conversion: Polygon to Nurbs, Nurbs to polygon, Highpoly, Low Poly, viewport references, Model using Reference images, basic posture, Difference between hi- poly & low-poly characters.

UNIT III:

Introduction to basic material types & Procedurals. Study of concepts: Opacity, Transparency, Specularity and color, Working with Transparency, Reflection & Refraction, Bump & Displacement Maps. Introduction to unwrapping, Unwrapping the maps for various 3d characters. Working with 2D Textures and 3D, Texture, Introduction to the mapping and Normal Maps, Shadow maps, Raytraced shadows.

UNIT IV:

Lighting, Working with Maya Lights 1-Point, Direct, Spot, Working with Maya Lights 2-Ambient, Areaand 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

UNIT V:

Concept of a lighting system and shadows, Creating area light shadows, setting area light visibility, Creating soft shadows with spotlights, Indirect lighting: Setting illumination for interiors, Tuning global illumination, rendering an AVI, Rendering an image sequence. Render layers: introduction, creating, Applying to render layer presets, setting overrides, creating render layer composites, Render Passes: Introduction, compare render passes and render layers, Render quality: anti-aliasing, setting color profiles, diagnosing ray tracing, adjust motion blur.

TEXT BOOKS:
1. Digital Modeling Book by William Vaughan
2. Advanced Maya Texturing and Lighting Book by Lee Lanier

REFERENCES:
1. 3D Automotive Modeling: An Insider's Guide to 3D Car - Book by Andrew Gahan
2. Character Development in Blender 2.5 Book by Jonathan Williamson
3. 3D Modeling and Printing with Tinkercad: Create and Print - Book by James FloydKelly
4. Beginning Blender: Open Source 3D Modeling, Animation, - Book by Lance Flavell
5. Integrating 3D Modeling, Photogrammetry - Book by David Halbstein and Shaun Foster

CO-CURRICULAR ACTIVITIES:

- Presentation on Modeling, Texturing Rendering, and popular workflow
- Demonstrate or Exhibit(museum) developed projects
- Group discussion on 2D, 2.5D & 3D
- Study tour or Visit to production house to get knowledge on the 3D pipeline
- Exhibit on the external and internal models with a team project

ASSESSMENT METOHD:

- Written assignment
- Self-directed study with peers and tutors
- Evidence of process and experimentation in response of animation

B. Sc	Semester: III	Credits: 1
Course: 3(L)	Introduction to 3D Lab	Hrs/Wk: 2

Details of Lab syllabus : Introduction to 3D Lab

1. Create any Model some objects such as chairs, tables, fruits, utensils

2. Create any Model instruments, tools

3. Create any Model of Cars or Bike,

4. Create any model of the male or female character.

5. Create any Model of any animal.

6. Create any Model of any birds, fishes, and worms.

7. Apply basic material and shader types & Procedurals textures.

8. Unwrap the models of objects and characters using various projection maps.

9. Apply texture on various objects and characters.

10. Create a natural outdoor or indoor scene.

11. Create Opacity, Smoothness, Secularity, and color maps, Transparency, Reflection

12. Bump & Displacement Maps

13. Render a frame and video of indoor and outdoor scenes.

14. Render a video of indoor scenes.

15. Render a photorealistic output of an interior scene.

16. Advance lighting using mental ray render.

17. Animate day and night scene of a street with the help of lighting.

MODEL QUESTION PAPER (Sem-end. Exam)

B. Sc DEGREE EXAMINATIONS
Semester - III
Course 3: Introduction to 3D

Time: 3Hrs.   Max.Marks:75

Section -A

Answer any FIVE of the following Question   5X5 = 25M

1. Explain men set in the maya

2. What is NURBS in detail

3. Explain Reflection & Refraction

4. Write about the lighting in details

5. What is AVI, Rendering an image

6. What is CV, EP, Bezier

7. Explain highpoly

8. How to create render for layer compositing

Section - B

Answer ALL the following question   5X10 = 50M

9. A) Briefly write maya interface
                              (OR)
    B) What shelf,hotkey and attribute editor? In detail

10. A) Explain Polyand NURBS in detial
                              (OR)
     B) What is difference between high & low poly

11. A) What is texture? Explain 2D & 3D textures
                              (OR)
     B) Explain Normal, shadow, raytraced maps

12. A) What is illumination and how to create
                              (OR)
     B) Explain Lighting and shadows creating

13. A) Difference between interiors and exterior lighting

                              (OR)
     B) What is HDRI and explain in detail

B. Sc	Semester: IV	Credits: 4
Course: 4	WEB TECHNOLOGIES	Hrs/Wk: 4

Aim and objectives of Course (Title of the course/paper): WEB TECHNOLOGIES
- Understand the web softwares to build objects
- Apply the knowledge to create web pages and web banners
- Analyze the importance of file backup and management(setup forms)
- Evaluate the projects and assignments developed/prepared by the students

Learning outcomes of Course (in consonance with the Bloom's Taxonomy):
- Define the terms and principles of web design and development. Get knowledge on theprogramming and scripting languages to develop web

UNIT I:
Page Setup, Designing Web Layout, Creating a Header, Create a Menu Bar, Search options, Importing Images, Aligning the page, Slice Tool Options, File Formats, Save for Web, Create a Animate Web Banner, Web Template using Flash, Publishing for Web.

UNIT II:
Dream Weaver: Interface, Defining a Site, Properties Panel, Creating a Page with Text, Creating Tables, Importing Images, .swf files, videos, Creating Hyper links, Frames & Frame Sets, i frames, Forms, Rollovers, Div Tags, Cascading Style Sheet, Types of CSS: Inline, Internal or Embedded, and External CSS. Publishing the Web Site

UNIT III:
Introduction HTML – Structure of HTML program – Commonly used HTML tags – Text Formatting – Text Styles – Other Text Effects – Lists – Tables – Frames –Adding Graphics to HTML Document – Cascading Style Sheets – Font Attributes – Color and Background Attributes – Text Attributes – Border Attributes – Margin Attributes – List Attributes.

UNIT IV:
Web Types: Static and Responsive Web Pages, Communicating on the Internet Web Services, Domain Name, Overview of TCP/IP and its Services –Web Servers – Web Clients/Browsers.

UNIT V:
(Web Hosting) Introduction to Protocols – About FTP – Web Hosting – Hosting through DOS- Hosting through Character Interface & Graphics Interface.

TEXT BOOKS:
1. Web Design Portfolio 2020 - Adobe Dreamweaver & Photoshop
2. Adobe Dreamweaver CC Basics of Web Design & Development - MARK MYERS

REFERENCES:
1. DAVID, RHONDA – Web Design with HTML/Flash/Java Script Bible.
2. RON WODASKI – Web Graphics Bible.
3. JIM MAIVALD - Adobe Dreamweaver Classroom in a Book

B. Sc	Semester: IV	Credits: 1
Course: 4(L)	**WEB PUBLISHING Lab**	Hrs/Wk: 2

Details of Lab syllabus: WEB PUBLISHING LABPHOTOSHOP & FLASH

1. Designing Web Layouts

2. Designing Web Pages

3. Publishing Flash Intros with Links

4. Publishing the Web site

5. HTML Page Layouts

6. HTML Page Development

7. Adding Graphics to HTML Document

DREAMWEAVER

1. Creating Web Pages and aligning through Dreamweaver

2. Creating web page college/institution

3. Any Brand of Product/Services web page

4. Fashion Design/Creative studio web page

5. Create web page software company

6. Forms web page

7. Flash web page

8. Incorporating Audio & Video Files

9. Database Linking

10. Web Hosting

CO-CURRICULAR ACTIVITIES:
- Conducting seminar/workshop on web design and development
- Conducting quiz on web
- Competition on web page creation

ASSESSMENT METOHD:
- Domain specific projects assessment
- Maintain web pages for temples
- Reflective Visual Journal for the works

MODEL QUESTION PAPER (Sem-end. Exam)
B. Sc DEGREE EXAMINATIONS
Semester - IV
Course 4: Web Technologies

Time: 3Hrs.   Max.Marks:75

Section -A

Answer any FIVE of the Question   5X5 = 25M

1. What is web layout

2. Explain the dreamweaver interface

3. what is HTML ? in details

4. explain static webpages

5. What is FTP? In details

6. Explain flash templet

7. what is CSS in details

8. what is hosting and how to hosting through DOS

Section - B

Answer ALL the following Question   5X10 = 50M

9.   A) Explain the web layout and header
> (OR)
> B) Write menubar and search options in details

10. A) what is swf files, videos and hyper links
> (OR)
> B) How to publishing the website write step by step

11. A) What is text, text styles and text effects
> (OR)
> B) How to create font attributes and color

12. A) how to communicating on internet web services
> (OR)
> B) Write in detail TCP,IP and services

13. A) How to hosting through DOS
> (OR)
> B) Explain character interface & Graphics interface

B. Sc	Semester: IV	Credits: 4
Course: 5	**ADVANCED 3D**	Hrs/Wk: 4

Aim and objectives of Course (Title of the course/paper): ADVANCED 3D

- Understand the origins of 3D Animation practice
- Learn fundamental principles of 3D animation
- Analyze the development in the 3D production
- Create the Artifacts appropriate for each stage of the pipeline

Learning outcomes of Course (in consonance with the Bloom's Taxonomy):

- Hands-on experience on the processes, tools, techniques, and stages of production inherent in the 3D industry

Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I:

Introduction to bone system/Joints and IK handles - Creating bone system and maintaining naming conventions - Skinning types - Import and export of skin weights - IK and FK basics - IK and FK switch - Introduction to Deformers - Introduction to constrains and implementation to rig - Maintaining proper hierarchy - Grouping and creating controls - Rigging the characters - Use of deformers in the rigging process.

UNIT II:

Brief about animation principles - Animation tools in 3D - Applying classical 2D animation techniques - Stretch squash for the 3D character - Creating the illusion of weight - Overview of Maya - Playback controls and Exploring Maya animation preferences - Details about graph editor - Bouncing Ball Exercise - Body language - Animating object along a motion path - Utilizing the tracks-editor to blend animation clips - Controlling attributes with set driven keys - Animating with constraints.

UNIT III:

Keyframing – Graph editor – Set the beginning and ending keys – Keys to make a ball bounce – Speed up the animation – Tune the animation curve – Set driven key – Playback range and create the objects – Examine the driven key – Path animation – Raise the train above the path – Trax Editor – Character set – Motion with a new clip

UNIT IV:

Previewing animations in real-time with play blasts, Introduction to scene animation and keyframing, dope sheet. Animal walk& run cycles, snakes, and birds. Biped Character walk cycles, Biped Character run cycles, pushing and pulling objects. Facialanimation and lip-sync. Nonlinear Animation with Trax editor. Working with character sets and clips. character interactions.

UNIT V:

Rendering Overview, What is rendering, How Maya renders Shader Networks, Shading Groups, Materials, Lights, Maya architecture, Nodes and Attributes, Hyper graph, IPR (Interactive Photorealistic Rendering), V-Ray techniques, Mental ray Techniques.

TEXT BOOKS:

1. Mastering Autodesk Maya 2016 – Wiley

REFERENCES:

1. Character Emotion in 2D and 3D Animation Book by Les Pardew
2. Introducing Character Animation with Blender Book by Tony Mullen
3. Mastering 3D Animation Book by Peter Ratner
4. The Art of 3D Computer Animation and Effects Book by Isaac Victor Kerlow
5. 3D Animation Essentials Book by Andy Beane.

6. Animation Methods - Rigging Made Easy: Rig Your First 3D ...
7. 3D game animation for dummies Book by Kelly Murdock

CO-CURRICULAR ACTIVITIES:
- Follow the given assignments
- Study tour for getting professional practice in industry-standard 3D Softwares
- Students will give seminar on Oral presentation of the animation
- Conducting quiz program on the 3D
- Group discussions on 3D Pipeline

ASSESSMENT METHOD:
- Domain specific quiz
- Practical production work on 3D portfolio
- Oral presentations on outputs

B. Sc	Semester: IV	Credits: 1
Course: 5(L)	Advanced 3D Lab	Hrs/Wk: 2

Details of Lab syllabus : Advanced 3D Lab

1. Create rigs for any model

2. Make an animation of a character walking in the street he picks up some object andthrows it.

3. Make various expressions of models and use them for blend shapes.

4. Make different kinds of biped walk (Happy, Sad, Attitude and Tiptop)

5. Mechanical rig and Vehicle rig

6. Rigging various props

7. Create run, jump, skid animations. Stair up and a stair down

8. Make animations of coin drop, ball bounce, path animation

9. Render a frame and video of indoor and outdoor scenes

10. Render a photorealistic output of an interior scene

11. Render a natural scene show different time by v-ray lighting

12. Advance lighting using mental ray render

13. Animate day and night scene of a street with the help of lighting

14. Create a hair system on a male or female model

15. Apply fur on a dog or cat model

16. Create a scene with a waterfall or fountain

17. Apply active/passive soft and rigid bodies

18. Create a scene of campfire followed by rainfall/snowfall

19. Create an animation of a non-living object.

MODEL QUESTION PAPER (Sem-end. Exam)
B. Sc DEGREE EXAMINATIONS
Semester - IV
Course 5: Advanced 3D

Time: 3Hrs.   Max.Marks:75

Section -A

Answer any FIVE of the following Question   **5X5 = 25M**

1. What is IK

2. What is 3D

3. What is Graph editor

4. what is Biped character

5. Explain rendering in detail

6. What is rigging

7. Explain the body language

8. What is IPR and V-Ray

Section - B

Answer ALL the following Question   **5X10 = 50M**

9. A) What is difference between IK and FK

                                  OR)
   B) Explain the characters rigging step by step

10. A) Explain the overview of Maya

                                  (OR)
    B) Explain the bouncing ball with drawing

11. A) what is keyframing in details?

                                  (OR)
    B) What is trax & graph editior

12. A) Write animations in real time

                                  (OR)
    B) Draw pushing and pulling animation? Write in details

13. A) What is node and attributes

                                  (OR)
     B) what is hyper graph and IPR

B. Sc	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 6A	2D Design	Hrs/Wk:4

Learning Outcomes:

Students at the successful completion of the course will be able to:

1. Understand the need, scope, and concepts in 2D animation
2. Identify various facilities required to set up a character and object animation
3. Comprehend various factors to create 2D objects
4. Learn skills related to choosing and drawing a background and foreground designing

Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Training and unit tests, etc.)*

UNIT I:

Introduction to 2D Animation Software, Project Creation, Creating Scenes in software, About Saving, About Server, User Interface, Menus, Toolbars, Workspaces, Documentation

UNIT II:

Layers and Columns, Layers, Cloning Layers, About Groups, Drawing, About Brush tool, Brush presets, Creating a pencil, About Shape tools, Stamp Tools, Eraser Tool, Drawing Space, Isometric Perspective

UNIT III:

Painting and Colors, Color swatches, Palettes, Painting, Dirt Cleanup, Gradient and texture, Paperless Animation, Rough Animation, Tools, Onionskin, About art layers, Scene Staging, Layer Position, Animation Tools, Multiplane

UNIT IV:

Digital Animation, Pegs, Keyframes, Controls, Functions, Velocity, Morphing Animation, Creating Morphing, Hints, Morphing quality, Importing & Scanning, Multi-layers PSD, About FLA, PSD Layouts

UNIT V:

Camera Set-up and Animation, Character Rigging, Tig Types, Models, Character Breakdown, Z Nudging, Cut-out Animation, Deformations, Effects, Sound, Rendering & Exporting, Library & Templates

TEXT & REFERENCES BOOKS:

1. Harmony20 Advanced - toon boom harmony 20 advanced user guide 2021
2. Harmony17 Premium - Getting Started Guide, 2020
3. *Web resources suggested by the Teacher concerned and the college Librarian including reading material*

Co-Curricular Activities:

a) Mandatory: (*Training of students by the teacher in field related skills)*
1. Seminar/Workshop on related topics
2. RVJ(Reflective Visual Journal) on the theory and particles
3. Production/ Live related 2D project
4. Industry trip

b) Suggested Co-Curricular Activities:
1. Training of students by a related field expert
2. Group discussions, Quiz, Debates, etc
3. Preparation of videos and PPT for the subject related presentations
4. Collection of material on the topics
5. Invited lectures and presentations on related topics

2D Design Lab
1. Tracing the Character
2. Bouncing Ball
3. Morphing
4. Camera Animation
5. Lip Sync for given dialogue
6. Add Light and Tone for the environment
7. Create a 2D animation story within 30sec

MODEL QUESTION PAPER (Sem-end. Exam)

B. Sc DEGREE EXAMINATION
SEMESTER –V (Skill Enhancement Course- Elective)
Course 6A: 2D Design

Time:3Hrs   Max.marks:75

Section – A

Answer any FIVE of the following Questions.   **5 X 5 = 25M**

1. Explain the project creation
2. Explain the User Interface of the 2D software
3. What is the server? Explain in detail
4. Explain the keyboard shortcuts
5. Write in detail about tools
6. What are view and workspace
7. How to add effects in the project
8. Explain the character breakdown

Section – B

Answer ALL the following Questions.   **5 X 10 = 50M**

9. a) How to select the character for a 2D short film
                                                (OR)
   b) What is Stand-Alone mode? Explain in detail

10. a) Explain the database in the server
                                                (OR)
    b) What about the Flat and customizing tools

11 a) What is clone layers?
                                                (OR)
   b) What is Annotation files? Explain in details

12 a) Explain the Brus tools and tips
                                                (OR)
   b) Write about the texture and dual tip

13 a) Explain the pencil and textures
                                                (OR)
   b) What is the Stamp tool and explain the creating process

B. Sc	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 7A	2D Game	Hrs/Wk:4

Learning Outcomes:

Students at the successful completion of the course will be able to:
1. Understand the need, scope, and concepts in 2D Game
2. Identify various facilities required to set up a character and object animation
3. Comprehend various factors to create 2D objects
4. Learn skills related to choosing and drawing a background and foreground designing

Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Training and unit tests, etc.)*

UNIT I:
Introduction to the 2D game, History of Physical game, History of computer games, Commercial 2D games, Game engines, Future of games

UNIT II:
Development of game, Functionality provided by a game engine, Console programming, Game Physics, Collision Detection, and resolution, Deformable bodies

UNIT III:
Gaming in harmony, Game asset creation, Game rigging guidelines, Game cutter, Game animation tips, Animating multiple sequences, Separate scenes, Separating using scene markers

UNIT IV:
Exporting to unity, Setting anchors and props, Exporting sprite, Exporting Easel JS, Working in Unity, Unity interface, About game objects, Props to anchors in Unity, Working with audio in Unity

UNIT V:
Scripting guide, Creating scripts, Script packaged with Harmony, Script Syntax, External script editor, Storing scripts in a custom directory

REFERENCE &TEXT BOOKS:
1. Harmony20 Advanced - toon boom harmony 20 advanced user guide 2021
2. Harmony17 Premium - Getting Started Guide, 2020
3. Advanced Game Development with Programmable Graphics Hardware, Alan Watt and Fabio Policarpo, A K Peters.
4. Game Programming Gems 1-6, Mark DeLoura, Charles River Media.
5. AI Game Programming Wisdom 1-3, Steve Rabin, Charles River Media.
   Web resources suggested by the Teacher concerned and the college Librarian including reading material

Co-Curricular Activities:
1. Seminar/Workshop on related topics
2. RVJ(Reflective Visual Journal) on the theory and particles
3. Production/ Live related Game
4. Industry trip

Suggested Co-Curricular Activities:
1. Training of students by a related field expert
2. Group discussions, Quiz, Debates, etc
3. Preparation of videos and PPT for the subject related presentations
4. Collection of material on the topics
5. Invited lectures and presentations on related topics

2D Game Lab:
1. 2D Game character design
2. 2D Game assets
3. 2D Game level design
4. Playable game with user interface
5. Upload in the play store

MODEL QUESTION PAPER (Sem-end. Exam)

B. Sc DEGREE EXAMINATION
SEMESTER –V (Skill Enhancement Course- Elective)
Course 7A: 2D Game

<u>Time:3Hrs</u>   <u>Max.marks:75</u>

Section – A

Answer any FIVE of the following Questions.   **5 X 5 = 25M**

1. What is a 2D game? Explain in detail
2. History of game design
3. Explain the game engines
4. What are assets for game
5. Explain the tools and techniques
6. Explain the script versions
7. Explain the script syntax
8. How to write story to script

Section – B

Answer ALL the following Questions.   **5 X 10 = 50M**

9. a) Discuss the physical game and computer game in detail
                                    (OR)
    b) Write about the game engines in detail

10. a) Explain the game physics
                                    (OR)
    b) Explain in detail Collision Detection, and resolution

11. a) Explain the game harmony
                                    (OR)
    b) Write about Game animation tips

12. a) Explain the process of how to export harmony to unity
                                    (OR)
    b) Write about the unity interface

13. a) What is an external script editor
                                    (OR)
    b) What are scripting languages? Explain in detail

B. Sc	Semester – V (Skill Enhancement Course-Elective)	Credits:4
Course: 6B	3D iClone	Hrs/Wk:4

Learning Outcomes

- Students at the successful completion of the course will be able to:
- Understand the need, scope, and concepts in 3D Animation
- Identify various facilities required to set up a 3D character model and animation
- Comprehend various factors to create 3D objects
- Learn skills related to choosing and drawing a background and foreground designing

Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Training and unit tests, etc.)*

UNIT I:
Introduction to iClone, Main Menu, Environment, Camera Toolbar, Physics Toolbar, Timeline panel, Scene manager, PDR Environment setup, Time, 2D Background section, Snap to grid, Texture and editor

UNIT II:
3D Real-time Viewer, Render options, Drag and Drop, Image and Video, Audio, System Requirements, Video memory usage, Visual Enhancements, Performance Notes, Loading files, Real-time rendering

Unit III:
Material and Texture, Lights and Shadows, Opcity, Creating Animation, Removing all animation, Body proportions, Applying Cloth, Show or hide Inner Meshes, RL Head, Crazy talk8, Environmental Settings, Clone Cloth, Gloves and Shoes, Actor.

UNIT IV:
Clone Bone, Creating ahead, Creating a Face, Photo enhancement, Facial Features, Full head morph, Motion puppet panel, Exaggeration and Speed, Puppeteeing Principles for Body puppet panel, Multilayer recording, Puppet to Timeline Clip.

UNIT V:
IK and FK, Toolbars for morph creator, Physics characters, Rigid Body, Soft Cloth, Dynamic, Kinematic, Creating moto with hinge, Moving and Rotating Spring effect, Rendering.

REFERENCE & TEXT BOOK:
1. Web resources suggested by the Teacher concerned and the college Librarian including reading material

Co-Curricular Activities:
1. Seminar/Workshop on related topics
2. RVJ(Reflective Visual Journal) on the theory and particles
3. Production/ Live projects
4. Industry trip

5. Online training with industry experts

Suggested Co-Curricular Activities:
1. Training of students by a related field expert
2. Group discussions, Quiz, Debates, etc
3. Preparation of videos and PPT for the subject related presentations
4. Collection of material on the topics
5. Invited lectures and presentations on related topics

3D iClone Lab:
1. Modeling - Human Character
2. Texturing and Lighting any one Internal / External set
3. 360 degree light setup any character
4. Multi-pass render
5. Rigg the character

MODEL QUESTION PAPER (Sem-end. Exam)

B. Sc DEGREE EXAMINATION
SEMESTER –V (Skill Enhancement Course- Elective)
Course 6B: 3D iClone

<u>Time:3Hrs</u>   <u>Max.marks:75</u>

Section - A

Answer any FIVE of the following Questions.   **5 X 5 = 25M**

1. Explain the interface of iClone?
2. What is the camera? Explain in detail
3. Explain toolbar? In detail
4. What is the visual environment? Explain in detail
5. What is clone bone setup the file
6. Explain in detail about the puppet tool
7. What is timeline
8. How to create a 3D model explains the process

Section – B

Answer ALL the following Questions.   **5 X 10 = 50M**

9. a) Explain the texture and texture editor windows? In details
                    (or)
   b) How to create 2D Background? Explain the process

10. a) what is 3D real-time viewer explain the methods
                    (or)
    b) Explain the system requirements and explain the process how to install software

11. a) Explain the process to apply the cloth on the character
                    (or)
    b) Explain the process to apply the gloves and shoes

12. a) How to create a face? Explain the process
                    (or)
    b) what is a puppet tool? Explain the use

13. a) What are IK and FK explain in detail
                    (or)
    b) Explain the soft bodies and rigid bodies in detail

B. Sc	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 7B	3D Blender	Hrs/Wk:4

Learning Outcomes

Students at the successful completion of the course will be able to:

1. Understand the process and methods of 3D creation and Softwares
2. Identify various facilities required to set up a 3D character model and animation
3. Comprehend various factors to create 3D objects
4. Learn skills related to demonstrating the 3D works

Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Training and unit tests, etc.)*

UNIT I:

Introduction to software, The screen setup, the user preferences window, Working with viewports, Moving around in 3D space, window and button control, creating viewports, working with basic meshes, using the main modifier to manipulate meshes, edit mode- mesh editing, the tool shelf, proportional editing, joining/ separating meshes, boolean operations,

UNIT II:

Blender Render Engines, The classic rendering engine, The cycles render engine, Tweaking cycles for speed & quality, Materials and Textures, Basic material settings, Basic texture settings, Using images and movies as textures, Displacement mapping, Materials and Textures in cycles,

UNIT III:

Setting up a world, Using color, mist and textures, Using an image in the background, Cycles world settings, Lighting and Cameras, Camera settings and options, Using nodes for depth-of-field, Green screen (chroma key), and more, Lighting types and settings, Indirect lighting, Basic setup options, Rendering movies and images, network rendering,

UNIT IV:

Lighting and shadows, Reflection (mirror) and refraction (transparency), Animation Basics, Basic key-framing and auto key-framing, Working with the graph editor and dope sheet, Animating mates, lamps and world settings.

UNIT V:

Adding 3D text, Blender 3d text settings, Converting to a mesh, NURBS and Meta shape basic, Using NURBS to create lofted shapes, Liquid and droplet effects using meta shapes, Modifiers, Basic mesh modifiers, simulation modifiers

REFERENCES & TEXT BOOKS:

1. Blender Basics Classroom Tutorial Book, fifth edition by James Chronister
2. Blender Basics Classroom Tutorial book, fourth edition by James Chronister
   Web resources suggested by the Teacher concerned and the college Librarian including reading material

Co-Curricular Activities:
1. Seminar/Workshop on related topics
2. RVJ(Reflective Visual Journal) on the theory and particles
3. Production/ Live projects
4. Industry trip
5. Online training with industry experts

Suggested Co-Curricular Activities:
6. Training of students by a related field expert
7. Group discussions, Quiz, Debates, etc
8. Preparation of videos and PPT for the subject related presentations
9. Collection of material on the topics
10. Invited lectures and presentations on related topics

3D Blender Lab:
1. Create a Bike model
2. Create a basic Robo model
3. Create a Landscape Light hose model
4. Apply texture and material for the light hose model
5. Apply ray trace on any character
6. Create and animate any company logo

MODEL QUESTION PAPER (Sem-end. Exam)

B. Sc DEGREE EXAMINATION
SEMESTER –V (Skill Enhancement Course- Elective)
Course 7B: 3D Blender

Time:3Hrs   Max.marks:75

Section – A

Answer any FIVE of the following Questions.   **5 X 5 = 25M**

1. Explain the user interface? In detail
2. What are Animation and basic concepts
3. Explain the screen and types
4. What is packing data
5. Explain in detail about button control
6. How to create viewports explain in detail
7. Briefly explain the material
8. What is displacement Mappin

Section - B

Answer ALL the following Questions.   **5 X 10 = 50M**

9. a) Briefly explain the key commands

(OR)

b) Write about the user preference window

10. a) What is 3D space and moving around

(OR)

b) Explain the button control in detail

11. a) What are Halo settings explain the process

(OR)

b) Explain the materials and textures

12. a) Explain the shelf tools in details

(OR)

b) What is mages and movies as textures explain the process

13. a) Explain the setting up a world

(OR)

b) Write about the color, starts and mist

B. Sc	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 6C	Game Level Design	Hrs/Wk:4

Learning Outcomes

Students at the successful completion of the course will be able to:
1. Understand the process and methods of Game design
2. Identify various facilities required to create a game level in the different divisors
3. Comprehend various factors to create levels
4. Learn skills related to demonstrating and exposing the game on different platforms

Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Training and unit tests, etc.)*
UNIT I:
Introducing Unreal Engine, Understanding the Gameplay Framework, Coordinates, Transforms, Units, and Organization, working with Static Mesh Actors,

UNIT II:
Applying Lighting and Rendering, Using Materials, using Audio System Elements, Creating Landscapes and Foliage, World Building, Crafting Effects with Particle Systems, Using Skeletal Mesh Actors,

UNIT III:
Matinee and Cinematics, Learning to work with Physics, Introducing blueprint visual scripting system, Working with Level blueprints, Working with blueprint classes, Using Editable variables and the construction script,

UNIT IV:
Making key input events and spawning actors, Making an action encounter, Creating an arcade shooter, Input systems and pawns

UNIT V:
Obstacles and Pickups, Working with UMG, Making an executable, Working with mobile, Using touch, Using a device motion data, Advanced packaging settings

REFERENCES & TEXT BOOKS:
1. Unreal Engine 4 game development, Aram Cookson, Ryan DowlingSoka, Clinton Crumpler
2. Unreal Engine 4 game development essentials

References Links
https://www.raywenderlich.com/771-unreal-engine-4-tutorial-for-beginners-getting-started
https://docs.unrealengine.com/4.27/en-US/
Web resources suggested by the Teacher concerned and the college Librarian including reading material

Co-Curricular Activities:
1. Seminar/Workshop on related topics
2. RVJ(Reflective Visual Journal) on the theory and particles
3. Production/ Live projects
4. Industry trip
5. Online training with industry experts

Suggested Co-Curricular Activities:
1. Training of students by a related field expert
2. Group discussions, Quiz, Debates, etc
3. Preparation of videos and PPT for the subject related presentations
4. Collection of material on the topics
5. Invited lectures and presentations on related topics

Game Level Design Lab:
1. Create a game model with the logo
2. Apply the texture and light of the created character
3. Create a one-level game with the playable mode
4. Create motion graphics using unreal
5. Show the work nodes

MODEL QUESTION PAPER (Sem-end. Exam)

B. Sc DEGREE EXAMINATION
SEMESTER –V (Skill Enhancement Course- Elective)
Course 6C: Game Level Design

Time:3Hrs   Max.marks:75

Section - A

Answer any FIVE of the following Questions.   **5 X 5 = 25M**
1. How to create a project explain the process
2. What is modes and visualizers
3. How to create units and measurements
4. Explain the process of collision hulls
5. What is lighting explained in detail
6. Explain the physically based rendering(PBR)
7. What is Audio and explain the basics of audio adjustments
8. How to add sound in-game

Section - B

Answer ALL the following Questions.   **5 X 10 = 50M**
9. a) Explain the process to build the character

(OR)

  b) How to matinee actors and editor

10. a) Explain the Physical Materials? In details

(OR)

  b) What is Blueprint editor? In detail

11. a) Explain the concepts in scripting

(OR)

  b) What are Blueprint classes? Explain the interface

12. a) What is a script and explain the uploading script

(OR)

  b) Explain the project setup for a game mode

13. a) How to create pawn and player controller

(OR)

  b) How to clean up old obstacles

B. Sc	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 7C	**Game Programming and Coding**	Hrs/Wk:4

Learning Outcomes

Students at the successful completion of the course will be able to:

1. Understand the process and methods of Game Programming
2. Identify various facilities required to upload your game in the play station/ play store
3. Comprehend various factors to develop a game
4. Learn skills related to demonstrating and exposing the game on different platforms
5. Compose 2D and 3D dynamic worlds enhanced with special effects including sounds, and evaluate game performance in those world

Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Training and unit tests, etc.)*

UNIT I:

What is game programming really like, the Gamers, The hard work, The Dark side, What is a Game, Game Logic, Game view for the human player, Game Views for AI Agents, Use DirectX

UNIT II:

Coding Tidbits and Style that saved me, Smart Code design practice, Smart Pointers and Naked pointers, Memory correctly, Grab Bag of useful stuff, Building your game, Creating a project, Multiplatform projects

UNIT III:

Game Initialization and shutdown, Game code App, Game Actors and component Architecture, Creating actors and components, Data Sharing, Direct Access, Controlling the Main Loop, A Hybrid technique, Loading and Caching game data

UNIT IV:

Programming Input Devices, User interface programming, Screen Elements, Game event management, Scripting with Lua, C/C++ scripting Language, Python, comments,Lua Development and Debugging

UNIT V:

Game Audio, Sound Processes, Some Random Notes, 3D Graphics basics, 3D Graphics Pipeline, 3D vertex and pixel shaders, 3D scenes, Collision and simple physics, An introduction to Game AI, Network programming for Multiplayer Games, Introduction to multiprogramming, Game of teapot wars, Debugging and profiling your game, Driving to the finish

REFERENCES & TEXT BOOKS:

1. Game coding complete fourth edition, Mike McShaffry
2. lbahari, J. & Albahari, B. (2017). C# 7.0 in a Nutshell: The Definitive Reference (7th edition). Sebastopol, CA: O'Reilly, ISBN: 978-1491987650

References Links

- **https://docs.unity3d.com/Manual/index.html**
- Steering behavior for characters: http://red3d.com/cwr/steer
- Gamasutra: news, ideas: http://www.gamasutra.com
- Research in games: http://game.itu.dk/index.php/About
- Research in games: http://game.itu.dk/index.php/About
- Unity game engine: https://unity3d.com/
- Cry game engine: http://cryengine.com/
  Web resources suggested by the Teacher concerned and the college Librarian including reading material

Co-Curricular Activities:

1. Seminar/Workshop on related topics
2. RVJ(Reflective Visual Journal) on the theory and particles
3. Production/ Live projects
4. Industry trip
5. Online training with industry experts
6. Exbiti the project

Suggested Co-Curricular Activities:

1. Training of students by a related field expert
2. Group discussions, Quiz, Debates, etc
3. Preparation of videos and PPT for the subject related presentations
4. Collection of material on the topics
5. Invited lectures and presentations on related topics
6. Design the own sound using different instrumental

Game Programming and Coding Lab:

1. Design and Develop a complete one level game
2. Gaming components in a programming platform
3. Upload game in the play store or play station

MODEL QUESTION PAPER (Sem-end. Exam)

B. Sc DEGREE EXAMINATION
SEMESTER –V (Skill Enhancement Course- Elective)
Course 7C: Game Programming and Coding

Time:3Hrs   Max.marks:75

Section - A

Answer any FIVE of the following Questions.   5 X 5 = 25M

1. Explain the Hardware and platforms of the game programming
2. What are file systems and resource caching
3. Explain the game logic and game state
4. Explain the interface classes of the programming language
5. What is C++'s shared
6. What is normal and milestone
7. Explain the system resources
8. How to check the memory using a script

Section - B

Answer ALL the following Questions.   5 X 10 = 50M

9. a) What are virtual memory and optimizing memory access

(OR)

b) Explain the Grab bag of useful stuff

10. a) How to build your game? Explain in detail

(OR)

b) What is little motivation and configurations

11. a) Explain the game actors and component architecture

(OR)

b) How to define actors components and create components

12. a) How to cache game data and loading data

(OR)

b) Explain the resource cache and cache prediction

13. a) Explain in detail about scripting with Lua

(OR)

b) Explain the scripting languages in details.