NATIONALEDUCATIONPOLICY-2020

STRUCTUREOF
BSc –ANIMATION & MULTIMEDIA
(BSA)

SYLLABUS
2023-24

CurriculumDesignCommittee,Uttarakhand

Sr.No.	Name&Designation	
1.	**Prof.N.K.Joshi** Vice-Chancellor,KumaunUniversityNainital	Chairman
2.	**Prof.O.P.S.Negi** Vice-Chancellor,UttarakhandOpenUniversity	Member
3.	**Prof.P.P.Dhyani** Vice-Chancellor,SriDevSumanUttarakhandUniversity	Member
4.	**Prof.N.S.Bhandari** Vice-Chancellor,SobanSinghJeenaUniversityAlmora	Member
5.	**Prof.SurekhaDangwal** Vice-Chancellor,DoonUniversity,Dehradun	Member
6.	**Prof.M.S.M.Rawat** Advisor,RashtriyaUchchatarShikshaAbhiyan,Uttarakhand	Member
7.	**Prof.K.D.Purohit** Advisor,RashtriyaUchchatarShikshaAbhiyan,Uttarakhand	Member

Syllabus Preparation Committee

S.No.	Name	Designation and Address
1.	Assistant Professor Sunil Rawat	Head Of Department Minerva Institute of Management & Technology
2.	Assistant Professor JaykritNegi	Minerva Institute of Management & Technology

DepartmentofAnimation & Multimedia

Semester-wiseTitles ofthePapersinAnimation & Multimedia					
Year	**Semester**	**Course Code**	**CourseTitle**	**Theory /Practical**	**Credits**
CertificateinAnimation &Multimedia					
FirstYear	I	BSA101	Foundation Course in Classical Animation	Theory	4
		BSA102	Principles Of Animation	Theory	4
		BSA103	Graphic Design	Theory	4
		BSA104	Principles Of Animation	Practical	2
		BSA105	Graphic Design	Practical	2
			MinorElectivePaper[onefromthelist]EL1*	Theory	4
	II	BSA201	Elements of preproduction	Theory	4
		BSA202	2D Digital Animation (Flash)	Theory	4
		BSA203	Video Editing(Adobe premiere)	Theory	4
		BSA204	2D Digital Animation (Flash)	Practical	2
		BSA205	Video Editing(Adobe premiere)	Practical	2
			MinorElectivePaper[onefromthelist]EL1*	Theory	4
DiplomainAnimation &Multimedia					
SecondYear	III	BSA301	3Ds Max	Theory	4
		BSA302	Maya modeling	Theory	4
		BSA303	Maya Texturing	Theory	4
		BSA304	3Ds Max	Practical	2
		BSA305	Maya modeling / Texturing	Practical	2
			MinorElectivePaper[onefromthelist]EL2**	Theory	4
	IV	BSA401	Maya rigging (skeleton System)	Theory	4
		BSA402	Maya skinning & Muscles Systems	Theory	4
		BSA403	Digital Compositing (Adobe after effects)	Theory	4
		BSA404	Maya rigging (skeleton System)	Practical	2
		BSA405	Digital Compositing (Adobe after effects)	Practical	2
			MinorElectivePaper[onefromthelist]EL2**	Theory	4
BachelorofScience in Animation & Multimedia					
ThirdYear	V	BSA501	3D character Animation(Maya)	Theory	4
		BSA502	Maya Lighting	Theory	4
		BSA503	Maya rendering	Theory	4
		BSA504	3D character Animation(Maya)	Practical	2
		BSA505	Maya Lighting / rendering	Practical	2
	VI	BSA601	Minor Project (Individual)	Practical	2
		BSA602	Group Project & Portfolio Development	Practical	2

*ListofElectivePapersEL1			
S.No.	**Course Code**	**CourseTitle**	**TobeOptedinthe Semester**
1	BSA106-E	Fundamentals of computers	I
2	BSA107-E	Audio editing	I/II
3	BSA206-E	Maya fundamentals	I/II
4	BSA207-E	Maya 3D Animation Basics	I/II
****ListofElectivePapersEL2**			
S.No.	**Course Code**	**CourseTitle**	**TobeOptedinthe Semester**
1	BSA306-E	Maya Dynamics	III
2	BSA307-E	Film making Basics	III/IV
3	BSA406-E	Blender Basics (3D)	III/IV
4	BSA407-E	3Ds Max Advanced	III/IV

Type ofProgramme	Year	Sem	Theory Paper	Credits /hrs	Practical	Credits /hrs	ElectivePaper	Credits /hrs	ResearchProject
Certificate	I	I	Foundation Course in Classical Animation	4/60	Principles Of Animation	2/60	* MinorElectivePaper[from thelist]EL1	4/60	
			Principles Of Animation	4/60	Graphic Design	2/60			
			Graphic Design	4/60					
		II	Elements of preproduction	4/60	2D Digital Animation (Flash)	2/60			
			2DDigital Animation (Flash)	4/60	Video Editing (Adobe premiere)	2/60			
			Video Editing (Adobe premiere)	4/60					
Diploma	II	III	3Ds Max	4/60	3Ds Max	2/60	** Minor ElectivePaper[from thelist]EL 2	4/60	
			Maya modeling	4/60	Maya modeling / Texturing	2/60			
			Maya Texturing	4/60					
		IV	Maya rigging (skeleton System)	4/60	Maya rigging (skeleton System)	2/60			
			Maya skinning & Muscles Systems	4/60	Digital Compositing (Adobe after effects)	2/60			
			Digital Compositing (Adobe after effects)	4/60					
BachelorofScience	III	V	3D character Animation (Maya)	4/60	3D character Animation (Maya)	2/60			
			Maya Lighting	4/60	Maya Lighting / rendering	2/60			
			Maya rendering	4/60					
		VI			MinorProject (Individual)	2/60			IndustrialTraining/Re-searchProject
					Group Project & Portfolio Development	2/60			IndustrialTraining/Re-searchProject

ProgrammePrerequisites:

1. Studentsmusthavepassedtheir10+2levelofeducationfromarecognizededucationalBoard.
2. KeenInterestinAnimation & Multimedia.

ProgrammeIntroduction

Animation Program is a comprehensive educational offering designed to provide students with the skills and knowledge necessary to excel in the exciting world of animation. The program combines artistic creativity with technical proficiency, allowing students to bring their imaginations to life through various animation techniques.

Throughout the program, students will gain hands-on experience in both 2D and 3D animation, learning industry-standard software and tools to create visually stunning and captivating animations. They will explore the principles of art and design, mastering the use of color, composition, and storytelling to effectively convey ideas and emotions through animation.

Programmeoutcomes(POs): ThroughcompletionoftheBachelorofScienceinAnimation & Multimedia programme,studentswill:

PO	The program outcomes of animation can vary depending on the specific goals and objectives of the program. However, here are some common program outcomes that are typically associated with animation education: 1. Technical Skills: Animation programs aim to develop students' technical skills in various aspects of animation production, such as 2D animation, 3D animation, computer-generated imagery (CGI), character design, rigging, texturing, lighting, and rendering. Students are expected to acquire proficiency in industry-standard animation software and tools. 2. Artistic Skills: Animation programs also focus on nurturing students' artistic abilities. They emphasize the principles of art and design, including color theory, composition, storytelling, character development, and visual aesthetics. Students learn to create visually appealing and engaging animations. 3. Creativity and Innovation: Animation education encourages students to think creatively and push the boundaries of their imagination. They are taught techniques to develop unique and innovative animation concepts and to express their ideas through animation. Students are encouraged to experiment with different styles and approaches to animation. 4. Collaboration and Teamwork: Animation is often a collaborative process, requiring effective teamwork and communication skills. Animation programs provide opportunities for students to work in teams on animation projects, simulating real-world production environments. They learn to collaborate with artists, animators, writers, sound designers, and other professionals to create cohesive and high-quality animations. 5. Problem-Solving Abilities: Animation involves overcoming various technical and creative challenges. Animation programs train students to analyze problems, think critically, and develop solutions. They learn to troubleshoot technical issues, address storytelling problems, and refine their animations based on feedback. 6. Professionalism and Industry Awareness: Animation programs aim to prepare students for careers in the animation industry. They provide insights into the industry's practices, standards, and trends. Students learn about the production pipeline, project management, and professional ethics. They also develop skills in presenting their work, building portfolios, and networking with industry professionals. 7. Portfolio Development: Building a strong portfolio is crucial for animation professionals. Animation programs guide students in creating a portfolio that showcases their skills, creativity, and versatility. Students work on various animation projects throughout the program, which become valuable additions to their portfolio. 8. Industry Readiness: The ultimate outcome of an animation program is to produce

	graduates who are ready for entry-level positions in the animation industry. Programs may offer internships or industry placements to provide students with practical experience and exposure to professional work environments.
Programmespecific outcomes (PSOs)CertificateinAnimation & Multimedia	
PSO	Program-specific outcomes (PSOs) for a Certificate in Animation program can be tailored to the specific goals and curriculum of the program. Here are some possible PSOs for a Certificate in Animation program: 1. PSO1: Proficiency in Animation Techniques: Demonstrate proficiency in various animation techniques, including 2D and/or 3D animation, character animation, motion graphics, or other specialized animation styles. 2. PSO2: Application of Animation Software: Apply industry-standard animation software and tools effectively to create animations, including software for modeling, texturing, rigging, lighting, rendering, and compositing.
Programmespecificoutcomes(PSOs)DiplomainA nimation& Multimedia	
PSO1	Here are some possible PSOs for a Diploma in Animation program: 1. PSO1: Specialized Animation Skills: Develop specialized skills in specific areas of animation, such as creature animation, facial animation, organic or inorganic modeling, lighting and texturing, dynamics and simulations, or specialized visual effects. Showcase a high level of proficiency in the chosen specialization. 2. PSO2: Technical Problem-solving: Apply advanced technical knowledge and problem-solving skills to overcome complex animation challenges. Troubleshoot technical issues, optimize rendering settings, implement advanced animation techniques, and address production constraints effectively. 3. PSO3: Collaboration and Teamwork: Collaborate effectively within a team environment, demonstrating leadership skills, strong communication abilities, and the capacity to work collaboratively with artists, animators, writers, sound designers, and other professionals. Contribute to the successful completion of animation projects as a valuable team member.
Programmespecificoutcomes(PSOs) BachelorofSciencein Animation Multimedia	
PSO1	A degree in animation can provide several benefits to individuals interested in pursuing a career in the field. Some of the key benefits include: 1. Specialized Knowledge and Skills: A degree program in animation provides comprehensive training in various aspects of animation, including 2D and 3D animation, character design, storytelling, special effects, and computer graphics. It equips students with the technical skills and creative abilities needed to succeed in the industry. 2. Industry-Standard Software Training: Animation degree programs often provide hands-on training using industry-standard software such as Maya, Adobe Creative Suite, or 3ds Max. Learning these tools gives students an advantage in the job market and ensures they are proficient in using the software commonly used in the animation industry. 3. Portfolio Development: Throughout an animation degree program, students have the opportunity to create a portfolio of their work. A strong portfolio showcasing a range of skills and creative projects is essential for landing job opportunities in animation studios,

Subject: Animation &Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**I
CourseCode:BSA101	**CourseTitle:**Foundation Course in classical animation		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will learn the fundamental principles of animation, such as timing, spacing, and weight, enabling them to create realistic and appealing animations.		
CO2:	Proficiency in Traditional Animation Techniques: Students will become skilled in traditional hand-drawn animation techniques, allowing them to bring characters and objects to life using pencil and paper or digital tools.		
CO3:	Knowledge of Animation History and Theory: Students will gain an understanding of animation's historical development and various theories, appreciating the evolution and diversity of the art form.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:3** **3**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	Introduction to Experimental animation.Various visual art forms.Orientation into time and performing art form.Relevance of message and medium and a relationship. “Introduction to cut out animation.(Card board sets, houses, layouts designing)".	12
II	Basics of 2D animation and 3D animation,Clay animation, Flip Books, making of flip books.Stop motion techniques.Animation set designing (Table top). Table top Model lighting.	12
III	Technique of working in groups.Introduction to the equipment.The animatorsdrawing tools."The animation table (light box,Field chart,line tests) The Exposure sheet(X sheet)	12
IV	The Basics of traditional 2D animation.Intro to the skill, required thereof.Beginning life drawing.Use of simple shapes.How to draw drawings with the help of basic shapesLearning to draw lines, circles, ovals, scribbles, jig jag (random) patternsetc.	12
V	Human anatomy. Proportion study of Human body parts.Learning basic bonestructure, muscle flow, head, body, hands, feetShading techniques.What is observation?Procedure-How to approach.Importance of guide line-Line of action. An intro on how to make drawings for animation, shapes and forms.About 2D and 3D drawings.Caricaturing-fundamentals, Exaggeration, Attitude, Silhouettes. Boundary breaking exercises and warm-ups, importance of scribbles, Gesture drawing, Line drawing and quick sketches.Drawings from observation, memory and imagination.	12

SuggestedReadings:

Experimental animation: an illustrated anthology Robert russett andCecile Starr.

The Everything Drawing Book: From Basic Shapes to People andAnimals by Helen south

Stop Motion: Craft Skills for Model Animation by Susannah Shaw (FocalPress)The ADVANCED Art of Stop-Motion Animation by Ken A. Priebe (Course

Technology PTR.Visual art: a critical introduction by James Morton Carpenter (HarcourtBrace Jovanovich publishers)Making Clay Animation by Nancy Smith, Melinda Kolk.Clay Modeling by Sally Henry (Rosen Publishing Group)Optical Illusion Flip-Book: Astounding Optical Illusions by GylesBrandreth, Katherine Joyce (sterling publisher) The Performing arts: music and dance By John Blacking, Joann W.

Kealiinohomoku"Modeling the Figure in Clay" by Bruno Lucchesi, MargitMalmstrom(Watson-guptill Publications)THE Natural way to draw by KIMON NICOLAIDES (Mariner Books)Art of Drawing Human Body (STERLING).

Suggestedequivalentonline learning sources:

https://animationresources.org/

https://www.youtube.com/user/AaronBlaiseArt

https://www.youtube.com/user/ProkoTV

https://www.youtube.com/user/noogai89

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia

Programme/Class: Certificate	**Year:**1st	**Semester:**I
CourseCode: BSA102	**CourseTitle:**Principles of Animation	

Courseoutcomes: Oncompletionofthecourse,thestudentwillbeableto:

CO1:	Understanding of Animation Principles: Students will develop a thorough understanding of the core principles of animation, including timing, spacing, squash and stretch, anticipation, staging, and more. They will learn how to apply these principles effectively to create compelling and believable animations.
CO2:	Mastery of Animation Techniques: Students will acquire advanced skills in animation techniques, such as character movement, weight distribution, facial expressions, and body mechanics. They will learn how to create animations that convey emotions, tell stories, and capture the essence of a character.
CO3:	Refinement of Animation Skills: Through practice and projects, students will refine their animation skills, honing their ability to create smooth and polished animations. They will learn to pay attention to details, improve the fluidity of motion, and create visually appealing sequences.

Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**
Max.Marks:25+75	**Min.PassingMarks:3** **3**

TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0

Unit	**Topic**	**No.of Lectures**
I	Drawing for animation.Exercises and warm-ups on pegging sheet.Quick studies from real life.Sequential movement drawing	12
II	Caricaturing the Action.Thumbnails, Drama and psychological effect. Motion studies, drawing for motion.The body language, Re-defining the drawings.	12
III	Intro to animation production process. Basic principles in animation: Squash and Stretch, Anticipation, Staging,	12
IV	Straight ahead and pose to pose, follow through and overlapping action Slow in and slow out, Arcs, Secondary action.	12
V	Mass and weight, Character acting, Volume.Line of action, Path of action, Walk cycles of animal and human.	12

SuggestedReadings:

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

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

Suggestedequivalentonline learning sources:
(53) 12 Principles of Animation - YouTube

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:
ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**I
CourseCode:BSA103	**CourseTitle:**Graphic Design (Adobe Illustrator and Photoshop)		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Career Opportunities: Upon completion of a graphic design program, students will be prepared for various career opportunities in the design industry. They can work as graphic designers, art directors, illustrators, web designers, brand identity designers, or pursue freelance opportunities.		
CO2:	Proficiency in Design Software: Students will become proficient in using industry-standard graphic design software such as Adobe Photoshop, Illustrator, and InDesign. They will have a solid understanding of the tools and features these programs offer, allowing them to create and manipulate visual elements effectively.		
CO3:	Understanding of Design Trends and Industry Practices: Students will gain knowledge of current design trends and industry best practices. They will stay updated on the latest design techniques, technologies, and emerging trends, enabling them to create modern and relevant designs.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:3** **3**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	Illustrator Introduction, GUIIntroduction to vector graphicsDifference between vector and raster graphicsWork space orientation-setting documentsSymbols-patternsBlends, clipping paths and masks.Art work by Trace tools and live paint. Concepts of adobe illustrator, Interface, Navigation and Work spaces"About libraries, Rulers and guides, Art boards, Smart guides, Boundingbox, Path tools, Pen tool, Pencil tool."About Grouping, layers, patterns, symbol.	12
II	About Blends and meshes, liquify and envelope toolsLive trace, live paint and live color.Illustrator for the webMake some graphics using linesDraw some graphics onpaper by combining basic shapes. Make drawing on paper to tell a folktaleDraw logos for the companies by using design tools, design a text logo	12

	formagazine/Newspaper, Design visiting cards, Design greeting cards, Design Kidsmagazine cover, Design college magazine cover, design a brochure, Make anyAdvertisements from newspaperDesign pamphlets on any companyDesign information brochures on any company	
III	Adobe Photoshop: Color Theory.Make a perfect cropping of some images using PhotoshopPrepare a cutout of some images using Photoshop Place nice background for those imagesPrepare nice background using gradient tool Scan various imagesColor adjustment of those images (Photo Retouching)Convert a B&W image into color (Use variation) "Choose a theme (Music, Festivals, Sports, Dance) andDesign 5-8 graphics on them."	12
IV	Color Modes, Color Corrections, Advanced color correction techniques(levels, Curves, Hue, Saturation etc).Design that Ad from your own style.Make Nature scene (winter) digital painting.Make Nature scene (summer) digital painting.Make digital painting (Use brush, pencil, smudge etc).Make something like modern art keeping in mind color combination.Make a collage of Indian art and culture.Make a collage of wildlife animals.Make a portrait of celebrity (Digital painting).Introduction to Photoshop and its interface, Navigation and All tools.Working with basic selections, advanced selections-1(on the basis ofchannels, color range, extract, filter etc).Exercises on selections.	12
V	Quick Masks, Layer Mask, Vector Mask,Layers & Layer Blending Modes.Play with Photoshop filters-mart Filters, Filter Gallery, exercises.Bring some object and try tomake it in computer.Make your own cartoon character.Design motifs tribe art. Make an animal character."Plan a story of that character &Make its backgrounds in three/four frames".Make posters on nature/earth.Matte Painting-Composition. Creating images for the web: Exporting images from Photoshop.	12

SuggestedReadings:

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

Suggestedequivalentonline learning sources:

Graphic Design & Illustration Tutorials by Envato Tuts+ (tutsplus.com)

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**I
CourseCode:BSA104		**CourseTitle:**Principles of Animation-PRACTICAL	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	After completing the study of the principles of animation, students will have a comprehensive understanding of the fundamental principles governing animation, enabling them to create dynamic and engaging animated sequences with lifelike movement and storytelling impact.		
CO2:	Upon practical completion of the principles of animation, students will possess the skills to apply the 12 principles effectively, resulting in the creation of captivating and professional-quality animations that demonstrate a strong understanding of movement, timing, and storytelling.		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic/Principles of Animation-PRACTICAL	No.of Lectures
	1. Walk cycles of Biped (human) 2. Walk cycles of Quadruped (animal) 3. Animation exercises on following principles: 4. Squash and Stretch, Anticipation, Staging, straight ahead and pose to 5. pose, follow through and overlapping action, slow in and slow out, Arcs, 6. Secondary action, Timing, Exaggeration, Solid drawing, Appeal, Mass 7. and weight, Character acting, Volume.	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**I
CourseCode:BSA105		**CourseTitle:**Graphic Design-PRACTICAL	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will be equipped with the skills to design for both print and digital mediums. They will understand the specific requirements and considerations for each medium, such as resolution, file formats, color modes, and production processes.		
CO2:	Students will acquire the knowledge and skills to create and develop visual identities for brands. They will learn about logo design, brand guidelines, and the importance of consistency in maintaining a brand's visual identity.		
CO3:	Students will apply how to create visually pleasing layouts for various mediums, including print and digital platforms. They will understand how to organize elements, balance visual weight, and create effective hierarchies to guide the viewer's attention.		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic/Graphic Design-PRACTICAL	No.of Lectures
	1. Design a logo, brochure, covering 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).	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**II
CourseCode:BSA201	**CourseTitle:**Elements of preproduction		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will develop a deep understanding of the production process, including the steps involved from concept development to the final product. They will learn about pre-production planning, resource allocation, scheduling, budgeting, and quality control.		
CO2:	Students will develop a deep understanding of the production process, including the steps involved from concept development to the final product. They will learn about pre-production planning, resource allocation, scheduling, budgeting, and quality control.		
CO3:	Students will develop adaptability skills and problem-solving abilities necessary for addressing unexpected challenges that may arise during production.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:3** **3**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	(Includes Camera Angles/Moves, Brief about "Basics elements to compose in photography", Perspectives and Story boarding). Camera Angles/MovesBasic cinematic techniques:Pan, Tilt, Dolly (Tracking shot), Mechanical, Pull focus, Zoom,Transition, Montage, Framing terms.Composition Techniques:Camera Height, Dramatic Angle, Extreme Angle, Birds'-Eye view, Screen Direction,180-degree rule, Titled Horizon, Canted Angle, Extreme Close-up, Staging, Deep Staging, Planar Staging, Lead the Eye, 3's and 4's,Interior Frame, Layers, Multi-Layer Action.Crane Techniques:Crane up, move away, Crane down, move toward, Searching Crane, Riseup, Fall Down, Crane Front-to-Top, Crane up Entrance, Crane up Expression, Crane up Look Down, Crane down, Look up.Techniques of Movement: Character Dolly, Discovery, Pull Back retraction, Pull Back Reveal, openup, Close out,Draw in Draw out, Spin Around, Flyover, Depth Dolly,Dolly up, Dolly Down, Spin look, Track through Solid, Vertigo, ExpandDolly, Contract Dolly, Collapse Dolly, Long Shot, Long Take, DelayedRevelation.	12
II	Techniques of Perspective:POV, Inventory POV, POV Object, POV Projectile, Tension Away,Tension to camera, Broken Wall, Voyeur, Mask Vignette, Screen,Reflection, Portal, Shadow, Silhouette, Subjective.Camera Techniques:Whip Pan, Whip Cut, Whip Zoom Look, Search up, Back to Front, Focusout, Pass out, Focus Transition Over expose Fade, Under expose Fade, Ceiling Twist, Flip Over, ShiftingAngle, Sleep Over.Editing Techniques:Jump Cut, Match Cut, Impact Cut, Impact Move, Thematic Cut,Thematic Move, Subliminal Cut, Cross cut, Cut away, Freeze Frame,Look At, Multi Take, Cut Zoom In, Cut Zoom Out, Montage Sequence,Jump Cut Sequence, Split screen, Sub Clip, Super impose, Fill, RevealFrame, Walk, Reveal Frame, Collage,Camera Snap, Photo to Scene,Impact Flash, Flashed Cut, Flashed Jump Cut.	12
III	Brief about "Basics elements to compose in photography/videography":1 Rule of thirds: What is rule of thirds? Written by, rule of thirdsgrid. 2 Balancing elements: Composing Balancing elements like Lightagainst dark, Colors, space, Large against small, Size, Shape, andTexture. 3 Symmetry and Patterns: What is symmetry and what is a pattern,where they are found, how we can break them. 4 Leading lines: What are leading lines?Different types of lines in photography: straight (Vertical),Horizontal, diagonal, curvy(s-lines), zigzag, radial.Examples and what they symbolize."Converging lines": definition and example. 5 Viewpoint: "What is a viewpoint? Different viewpoints like: EyeLevel, Low Angle, High Angle and Dutch Angle." 6 Depth of field: What is DOF, Factors determining DOF likeaperture, focal length and distance? 7 Framing: What is framing. What are "Headroom", "looking room",	12

	and "leading room" in framing, Framing by Vignetting? 8 Cropping: Definition, Where and why it is used.	
IV	Perspectives:Perspective in animation:Perspective in 1 point, 2 point, 3 point. Perspective in multiple points.Vanishing point in horizon, outside horizon and indoors,Importance of eye level.Objects in perspective:Blocks and boxes. Curves and cylinders.Human forms in perspective.Scale diagrams in perspective.Cast shadow exercise, Shapes in perspective with light and shade.Storyboarding:Elements of storyboardingStaging: Principles of staging-the center of interest, balance, framing, lighting, posterization, variety, rhythm, design.Layout: (animation levels-overlay, overlay/underlay, held level. underlay,background, camera bed)Transitions : Cut to, fade to/fade from, x-dissolve/cross dissolve, rippledissolve, match cut, omit, dialog, wipe, same as /re-use, in and out,montage.	12
V	Storyboard notations:OL, UL, BG, SC, SEQ, layout, transitions, dialog, action, frames, cameramovement, SFX, page numbering, flop, camera shakes/jars, cont., Creating storyboard for the story with film grammar: frame, shot, scene,sequence. Analyze storyboard of a film, working with a storyboard, Visualcontinuity, Timing the story board.Student project-Story boarding.	12

SuggestedReadings:

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

Suggestedequivalentonline learning sources:
www.youtube.com/user/filmriot
Indy Mogul - YouTube

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**II
CourseCode: BSA202	**CourseTitle:**2D Digital Animation (Flash)		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Proficiency in Adobe Flash: Students will gain a strong understanding of the Adobe Flash software (now known as Adobe Animate) and its tools and features. They will become proficient in navigating the interface, using the drawing and animation tools, and managing timelines and layers.		
CO2:	Students will acquire skills in animating 2D characters using Flash. They will learn how to create keyframes, use the timeline, and manipulate character rigs or symbols to bring characters to life. They		

	will understand concepts such as walk cycles, facial expressions, and body mechanics in character animation.
CO3:	Students will learn techniques for syncing character dialogue or mouth movements with audio. They will gain an understanding of how to integrate sound effects and music into their animations to enhance the overall audio-visual experience.

Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**
Max.Marks:25+75	**Min.PassingMarks:3** **3**

TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0

Unit	Topic	No.of Lectures
I	Workspace overview -Panels (property inspector, library panel, movie explorer, history panel color panel, timeline) -Stage, Pasteboard, Tool Box. Customize the workshop Docking, minimizing, maximizing, show /hide panels/creating custom workspace, reset a predefined workspace, delete a custom workspace Using the stage and tools panel Selecting and deselecting objects on the stage, tool box overview Working with Animate documents: About flash files, (*.FLA,*.SWF,*.FLP,*.AS) Create or open a document and set its properties, View a document when multiple documents are open. Working with project, importing art work into flash Working with PSD files-PSD file import preferences (Layer Comp, Select Layer, Merge, Text Options and Flatten Etc). "Adding media to library (Images, Audio, Video), Work with libraries and its items, working with timeline, working with scenes, Find and replace command, about templates.	12
II	Drawing Basics: About vector and bitmap graphics Flash drawing module, about overlapping shapes, Using flash drawing and painting tools: Draw with pencil tools, brush tool, pen tool. Draw straight lines, Reshaping lines and shape outlines, snapping (object snapping, pixel snapping and snap alignment, working with color, strokes (ink bottle tool) and fills (Solid fill, Gradient fill, Bitmap fill).	12
III	Working with graphic objects: Selection objects (lasso, magic wand, polygon tool), Moving (dragging, arrow keys, property inspector), Copying and deleting objects, Arranging objects (Stack, Align, group, Break apart groups and objects) and transforming objects (move, skew, rotate, scale). Using symbols, instances and library assets: Symbols overview, Types of symbols(graphic, button, movie clip), Create symbols, Convert animation on the stage into a movie clip, Duplicate symbols, Edit symbols, working with symbol instances. Animation symbols.	12
IV	Creating animation: Animation basics, creating motion, creating key frames, Representations of animation in the timeline, Frame rates, Frame by frame animation (creating key frame, copy/paste key frame, deleting key frames etc), Onion skinning, Extend still images, Mask layers (create mask layer, link, unlink, and delete and animating the mask layers). USING timeline effects: Twinned Animation (motion tween, shape tween, guidelines), Special effects (drop shadow, blur, glow, bevel, adjust color etc)	12

	Filter: Animation filters, Create preset filter libraries,	
V	Blend modes in Flash: Normal, layer, darken, multiply, lighten, screen, overlay, hard light, Difference, add subtract etc. Working with text Adding text, text effect, tweening, spell check, find and replace, transform, modifying. Working with Sound: Formats: WAV, MP3, AIFF, SUN AV Importing audio to the file, modifying, editing, effects and sound compression. Working with Video: Importing, embedding and creating external links to videos.	12

SuggestedReadings:

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

Suggestedequivalentonline learning sources:
https://helpx.adobe.com/animate/tutorials.html

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**II
CourseCode:BSA203	**CourseTitle:**Video Editing (Adobe premiere)		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will learn the fundamental concepts of video editing, including the different types of shots, composition, pacing, and storytelling techniques.		
CO2:	Students will become familiar with the layout and features of the Premiere Pro editing software. They will learn how to navigate the timeline, use the various panels, and customize the workspace to suit their needs.		
CO3:	Students will learn how to import video and audio files into Premiere Pro, organize their media assets, and create a structured project file for efficient editing.		

Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**
Max.Marks:25+75	**Min.PassingMarks:3** **3**
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0	

Unit	Topic	No.of Lectures
I	Introduction: What is premiere pro, why and what for? Concept of nonlinear editing. Digital video principles: Video formats, frame rates, aspect ratios, progressive vs. interlaced, video outputs, compressions. Introductory project: Workflow Adding footage Time code BasicInterface of premiere pro All panels of premiere (tools, project, monitor, source, Timeline, audio meters, misc)	12
II	Importing and organizing footage: Project, Sequence, Capturing, Importing, Sorting Basic video editing: Rough editing, Preliminary, Overlay edit, Layers Ripple edit, Slip edit, Razor tool, Moving edit Navigating Understand all Tools on toolbox for editing clips. The art of video editing: Job, When, Avoiding, Pacing, Establishing, Emotional Fixing, Matching. Helpful editing techniques: Markers, replacing footage, Exporting still, Alternate, Rearranging clips, Targeting, Disconnecting and Offline.	12
III	Adjusting clip properties: Rubber band, Position, Anchor, Size. Playing with time: Speed, Rate, Backwards. Attributes of video: Pixels, Frame rates, HD. Creating moving elements: Layered, Animating and Fading.	12
IV	Applying video transitions: Applying (various types), Effectively, Default. Working with audio: Ambient, Cutting music, Changing, Fixing, Censoring. Applying video effects: Censored, Flare, Bug, Textures Various effects: adjust, blur, sharpen, channel, color correction, Distort, generate, image control, keying, noise, perspective, Stylize, time, transition, transform utility, video.	12
V	Basic compositing: Compositing, Green (keying), Blend. Color correction: White balance, Contrast, Luminance, Cinematic, Vignette, Night. Making titles, credits and lower thirds: Titling and superimposing, Third, Credits. Exporting video: Sequences, Media encoder, Formats, Portions, Letter boxed. Working with other applications:	12

	Other apps, Final cut.	

SuggestedReadings:

Adobe Premiere Pro CS5 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
Film Editing: Great Cuts Every Filmmaker and Movie Lover Must. Know Author: Gael Chandler (Michael Wiese Productions).

Suggestedequivalentonline learning sources:

Premiere Pro tutorials | Learn how to use Premiere Pro (adobe.com)
(27) Adobe Creative Cloud - YouTube

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**II
CourseCode:BSA204		**CourseTitle:**2D Digital Animation (Flash)-PRACTICAL	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Storyboarding and Storytelling: Students will learn the importance of storyboarding as a pre-production process in animation. They will gain skills in creating visual narratives, planning shots, and organizing scenes to effectively convey stories and ideas in their animations.		
CO2:	Collaboration and Critique: Students will develop skills in giving and receiving constructive feedback, collaborating with other animators, and working in a team environment. They will learn to iterate and refine their animations based on feedback and critique.		
CO3:	completing a 2D animation course using Flash will provide students with the necessary skills and knowledge to create compelling 2D animations. They will be well-prepared to pursue careers or freelance opportunities in the animation industry or continue their studies in animation-related fields.		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic	No.of Lectures
	1. Drawing a background scene with brush, paint bucket and pencil tool. 2. Symbols 3. Graphic (animation of a graphic object with motion tweening), 4. Movie clip (small animation with movie clip), 5. Buttons (making interactive web buttons). 6. Animation with text and putting different text effects. 7. A lip synchronization exercise with audio and character. 8. Small web file having embedded video and playing it. 9. Tweening Animation (shape tween and motion tween) 10. Walk cycles of Biped with tweening (human) 11. Walk cycles of Quadruped with tweening (animal). 12. Adding time line effects on animations created above. 13. Mini project on flash features.	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: Certificate		**Year:**1st	**Semester:**II
CourseCode:BSA205		**CourseTitle:**Video Editing (Adobe premiere)-PRACTICAL	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will learn how to cut, trim, and arrange video and audio clips on the timeline. They will understand the various editing tools and techniques available in Premiere Pro, including ripple edits, roll edits, and slip edits		
CO2:	Students will learn how to adjust the color and tone of their videos using Premiere Pro's color correction tools. They will understand techniques such as white balance, exposure correction, and color grading to achieve the desired look and mood.		
CO3:	students will have a comprehensive understanding of video editing principles and techniques using Adobe Premiere Pro and will be capable of editing professional-quality videos for various purposes		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic	No.of Lectures
	1. Make a composition in premiere pro **2.** Recording your own voice with sound booth Using copy, cut, paste options make a new tune By using mix paste option add background music to your voice Add fade in and fade outs to a track **3.** Make a loop of sound **4.** Make a multi-track composition Add effects to a track Add scores to a track Change pith and time to a given track Make a speech transcription to a given track Cleanup audio. **5.** Making a short movie by using various clips. **6.** Adding old movie sound/audio to new movie visuals and vice versa. **7.** Making movie trailer by footage. **8.** Creating titles in premiere. **9.** Creating credits of the movie.	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: Diploma		**Year:**2nd	**Semester:**III
CourseCode:BSA301	**CourseTitle:**3Ds Max		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	The student will have a solid understanding of the basic concepts and principles of 3D computer graphics, including modeling, texturing, lighting, and rendering.		
CO2:	The student will be able to create 3D models using different techniques such as polygon modeling, spline modeling, and procedural modeling. They will understand how to manipulate vertices, edges, and polygons to achieve the desired shapes and forms.		
CO3:	The student will be able to efficiently navigate and utilize the various tools, menus, and panels within the 3ds Max software, allowing them to work effectively in the application.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:3** **3**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	Getting familiar with the interface, Touring the command panels Creating primitives, Navigating the viewports Understanding the concept of four view ports. Aligning object in the each view port in X, Y, Z axis	12
II	Using hotkeys, Configuring the viewports Transforming objects, Using the toolbars. **Hierarchies** Understanding hierarchies, Understanding reference coordinate systems, Editing pivot points, Linking objects, Animating a hierarchy.	12
III	**Extruding Objects** Drawing a shape to extrude, Creating text, Extruding vs. beveling text. **Lathing Objects** Lathing pitfalls, Drawing a shape to lathe, Lathing a shape, Using the Outline command, The Shell Modifier, Changing the lathe axis. **Lofting Objects** Shape vs. path, Lofting issues and problems Lofting multiple shapes, Loft deformations, Animating loft deformations Mapping a lofted object, The Sweep Modifier.	12
IV	**Introduction to Polygonal Modeling** Creating basic geometry. Sub-object vertex commands. Sub-object edge commands. Sub-object polygon commands. **Modeling with Modifiers** Bend, Displace, FFD (freeform deformation), Lattice, Noise, Slice, Applying modifiers at the sub-object level, Copying and pasting modifiers, Important modifier stack issues. **Cloning Methods** Copying objects, Instancing objects, Referencing objects, The Make Unique option.	12
V	**Particle systems:** What are particles? Understanding particle systems, Exploring standard particle types create different particle systems like Spray, Snow, Blizzard, PArray, Pcloud, Super Spray. **Camera Basics** Creating cameras, Understanding target and free cameras Using Camera Pan, Truck, and Dolly Adjusting the field of view, Understanding aspect ratio Showing safe frames, choosing render output size	12

SuggestedReadings:

3ds Max 2010 and higher version Bible by Kelly Murdock (John Wiley & Sons).
3ds max a step by step approach by kurtwendt.

Suggestedequivalentonline learning sources:
3ds Max Online Training Courses | LinkedIn Learning, formerly Lynda.com

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:
ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia		
Programme/Class: Diploma	**Year:**2nd	**Semester:**III
CourseCode: BSA302	**CourseTitle:**Maya modeling	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:	
CO1:	The student will have a solid understanding of the basic concepts and principles of 3D modeling, including polygon modeling, NURBS modeling, and subdivision surfaces.	
CO2:	The student will be able to efficiently navigate and utilize the various tools, menus, and panels within the Maya software, allowing them to work effectively in the application.	
CO3:	The student will be able to create 3D models using different techniques such as polygon modeling, NURBS modeling, and subdivision surface modeling. They will understand how to manipulate vertices, edges, and polygons to achieve the desired shapes and forms.	
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**	
Max.Marks:25+75	**Min.PassingMarks:3 3**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0		

Unit	**Topic**	**No.of Lectures**
I	What is 3D Modeling? **Types Of Modeling**: Nurbs, polygon, subdivision. **Techniques of Modeling:** Poly count (low poly, high poly, polygon count), Surface hardness (object/prop, organic/characters.	12
III	Move, rotate, or scale polygon components Modifying polygon meshes(chamfer, split poly, insert edge loop tool, merge vertex, detach component, extrude, bridge, append to poly, combine ,separate, triangulate, quadrangulate, create polygon tool, sculpt geometry, smooth, mirror geometry. Converting poly and subdivision.	12
IV	**NurbsModeling:** What are Nurbs? Components of Nurbs curves, degree of Nurbs curves and surfaces, moving edit points vs. Moving cvs, Bezier curves, reshape a curve or surface manually ,align a curve with a curve or surface, align surface edges ,smooth a curve ,lock or unlock the length of a curve ,straighten,	12

	smooth, curl or bend a curve ,extend a curve , extend a surface, trimming, stitching. **Editing Nurbs:** Duplicate Nurbs patches, project curve on surface, intersect surfaces, trim tool, un-trim surfaces, Booleans : union tool, difference tool, intersection tool, attach surfaces, attach without moving, detach surfaces, align surfaces, open/close surfaces, move seam, insert isoparms, extend surfaces, reverse surface direction, rebuild surfaces, stitch surface points.	
V	**Putting Surfaces:** Revolve, loft, planar, extrude, birail, boundary, square,bevel. **Editing Curves:** duplicate surface curves, attach curves, detach curves, align curves, open/close curves, move seam, cut curve, intersect curves, curve fillet, insert knot, reverse curve direction, rebuild curve, add points tool, curve editing tool, project tangent, modify curves, Bezier curves. Converting Nurbs to polygons and subdivision.	12

SuggestedReadings:

Maya Bible any version book

Maya a step by step book

Suggestedequivalentonline learning sources:

(29) Maya 101 - YouTube

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: Diploma		**Year:**2nd	**Semester:**III
CourseCode:BSA303	**CourseTitle:**Maya Texturing		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	The student will have a solid understanding of the basic concepts and principles of texturing in Maya.		
CO2:	The student will be able to create or import textures and apply them to 3D models in Maya. They will understand how to assign textures to specific surfaces, adjust their placement, and control tiling and scaling.		
CO3:	The student will have the skills to perform UV mapping and unwrapping, which involves creating a 2D representation of the 3D surface for texture application. They will understand different UV mapping techniques, such as planar, cylindrical, and spherical mapping, and be able to efficiently unwrap UVs for texturing purposes.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		

Max.Marks:25+75	Min.PassingMarks:3 3

TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0

Unit	Topic	No.of Lectures
I	Introduction to UV mapping. **Creating UV's (Polygons)** Automatic UV mapping, Planar UV mapping, Cylindrical UV mapping, Spherical UV mapping, User-defined UV mapping, Camera UV mapping, Transfer UVs between meshes, Confirm UV placement.	12
II	UV Texture editor overview UV sets: Create UV sets ,Switch between UV sets ,Duplicate, rename,or delete a UV set ,Assign a texture to a UV set ,Copy UVs from oneUV set to another.Editing UV's inTexture editor:Select UVs, Display a subset of UVs,	12
III	Dolly or track within the UV Texture Editor,Display a texture behind the UVs, Delete UVs,Update a texture image after UV modification,Use the UV Texture Editor grid, Save an image of the UV layout,Modify UVs using the UV Lattice Tool, Modify UVs using the UV Smudge Tool,Separate & attach UV shells,Display overlapping UVs ,	12
IV	Map border UVs to a square or circle,Straighten border UVs,Relax and untangle UV's, Unfold a UV mesh,Flip or rotate UV shells, Copy UVs,Color attributes between polygons.Nurbs UV Mapping	12
V	Implicit and explicit UV set, Limitations of UV's for Nurbs in Maya.Texture Map: Color maps, Transparency maps, specular maps,Reflection maps, Bump maps, Displacement maps.Toon Shading: Assign Fill shader, Assign outline.Surface Materials:About surface materials.Common surface material attributes,Common surface material Specular Shading attributes.	12

SuggestedReadings:

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

Suggestedequivalentonline learning sources:

Maya Getting Started (autodesk.com)

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject:Animation & Multimedia		
Programme/Class: Diploma	**Year:**2nd	**Semester:**III
CourseCode:BSA304	**CourseTitle:**3Ds Max-PRACTICAL	

Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:
CO1:	3ds Max course equips students with a strong foundation in 3D computer graphics and the ability to create and manipulate 3D models, apply materials and textures, set up lighting, animate objects, simulate dynamics, and render high-quality images and animations.
CO2:	The student will be able to create 3D models using different techniques such as polygon modeling, spline modeling, and procedural modeling. They will understand how to manipulate vertices, edges, and polygons to achieve the desired shapes and forms.

CO3:	The student will be able to create and adjust various lighting setups to illuminate their scenes realistically. They will understand how to use different light types, adjust their properties, and control shadows to achieve the desired atmosphere and mood.

Credits:2	**CoreCompulsory**
Max.Marks:25+75	**Min.PassingMarks:33**

TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4

Unit	Topic	No.of Lectures
	Lofting Objects Shape vs. path, Lofting issues and problems Lofting multiple shapes, Loft deformations, Animating loft deformations **Modeling with Modifiers** Bend, Displace, FFD (freeform deformation), Lattice, Noise, Slice, Applying modifiers at the sub-object level, Copying and pasting modifiers, Important modifier stack issues. **Cloning Methods** Copying objects, Instancing objects, Referencing objects, The Make Unique option. **Particle systems:** What are particles? Understanding particle systems, Exploring standard particle types create different particle systems like Spray, Snow, Blizzard, PArray, Pcloud, Super Spray	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: Diploma		**Year:**2nd	**Semester:**III
CourseCode:BSA305		**CourseTitle:**3d Maya Modeling/ Texturing: Practical	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	The student will be able to create complex and detailed 3D models using various modeling techniques in Maya. They will understand how to manipulate vertices, edges, and polygons to achieve the desired shapes and forms.		
CO2:	UV mapping and unwrapping: The student will have the skills to perform efficient UV mapping and unwrapping for their 3D models. They will understand different mapping techniques and be able to unwrap UVs to prepare models for texturing.		
CO3:	students will have a comprehensive understanding of video editing principles and techniques using Adobe Premiere Pro and will be capable of editing professional-quality videos for various purposes		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic	No.of Lectures
	Modeling a high poly model. Technical issues related to managing high poly model. Managing the display of huge sets and models in the view port. Modeling the character using templates & view port references. "Optimizing the final model, refining the mesh, basic posture. Testing the model", Difference between hi-poly & low-poly characters. Introduction to UV mapping. **Creating UV's (Polygons)** Automatic UV mapping, Planar UV mapping, Cylindrical UV mapping, Spherical UV mapping, User-defined UV mapping, UV Texture editor overview	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: Diploma		**Year:**2nd	**Semester:**IV
CourseCode:BSA401	**CourseTitle:**Maya rigging (skeleton System)		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will be able to build rigging systems that control the movement and deformation of 3D characters, creatures, or objects in Maya.		
CO2:	They will have a solid understanding of rigging concepts, including joint hierarchies, control systems, constraints, and deformers..		
CO3:	The student will be able to efficiently navigate and utilize the various tools, menus, and panels within the 3ds Max software, allowing them to work effectively in the application.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:3** **3**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	What is rigging and why it is needed? Pivot: setting a pivot point, Group: creating groups in rigging and maintaining hierarchy, Joint tool: Introduction to bone system/Joints. Creating bone system and maintaining naming conventions, Parenting the joints and creating hierarchies in joint setup. Reroot skeleton, remove, disconnect and connect joint, Mirror joint: behavior and orientation, maintaining naming conventions. Set preferred angle.	12
II	IK handle tool: SC solver and RP Solver. IK Spline handle tool: root on curve, auto parent curve. What is Inverse kinematics and Forward Kinematics? IK and FK basics, IK and FK switch, stretchy IK and FK.	12
III	Constraints: What are constraints? Point constraint: Set point constraints, Edit point constraints, Animate target object weights. Aim constraint, Orient constraint, Scale constraint, Parent constraint, Geometry constraint, Normal constraint, Tangent constraint, Pole Vector constraint. Animation-Constraint blending,	12
IV	Set Driven Key-Constraint blending Animate and constrain an object Animation-Constraint blending workflow Turning all constraint nodes on or off. Creating Deformers: Lattice: reset lattice, remove lattice tweaks, Wrap deformer: adding and removing wrap deformer influence objects, Cluster deformer: paint cluster weight tool, soft modification tool, The bend deformer, Flare deformer, Sine deformer, squash deformer, twist deformer, wave deformer, Sculpt deformer, Jiggle deformer: paint jiggle weights tool, Wire deformer: wire deformer tools under edit deformers menu, paint wire weights tool,	12
V	Wrinkle tool, Point on curve deformer, Edit deformer's options, The edit membership tool, The prune membership tool, Mirror deformer weights tool. Use of deformers in rigging process. Maintaining proper hierarchy, grouping and creating controls. Creating control objects. Creating a global controller.	12

SuggestedReadings:
"Inspired 3D Advanced Rigging and Deformations" by Brad Clark, published by Premier Press
"Rig it Right! Maya Animation Rigging Concepts" by Tina O'Hailey, published by Sybex
"The Art of Rigging" by Kaydara, Alias Learning Tools (Discreet, Alias Wavefront)

Suggestedequivalentonline learning sources:
"Rapid Rig: Advanced" - Auto Rig for Maya - Character Scripts / Plugins for Maya (highend3d.com)
Maya Help | Autodesk

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:
ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia		
Programme/Class: Diploma	**Year:**2nd	**Semester:**IV
CourseCode: BSA402	**CourseTitle:**Maya skinning & Muscles Systems	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:	
CO1:	Students will have a solid understanding of skinning techniques, including smooth skinning, rigid binding, painting skin weights, and using influence objects..	
CO2:	hey will be capable of creating smooth and realistic deformations on 3D character models using advanced skinning techniques.	
CO3:	Students will have a thorough understanding of the Maya muscle system and its integration with character rigs.	
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**	
Max.Marks:25+75	**Min.PassingMarks:3 3**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0		

Unit	**Topic**	**No.of Lectures**
I	Bind pose and its importance. Skinning: types of skinning. Smooth binding: Bind to options, bind method and skinning method, Normalize weights, setting max influences, Drop-off rate. Interactive skin bind options. Rigid binding: bind to options, binding methods: closest point, partition set.	12
II	Edit smooth skin: adding and removing influences, Paint skin weights tool, Import and export of skin weight maps, Mirror skin weight tools, Copy and smooth skin weight tools, Copy and paste vertex weights, Prune small weights, Weight normalization: disable and enable weight.	12
III	Substitute geometry: Old and new geometry options/settings. Edit rigid skin: Create flexor, copy flexor, preserve skin groups options. Introduction to Muscle system.	12

	Muscle creator and converting surface to muscle bone. Make capsule and adding locator to capsule, Setting up master muscle controller. Simple muscle: Muscle builder and muscle parameters. Muscle spline deformer, custom muscle shapes, Muscle skin setup: Applying muscle system skin deformer, Convert smooth skin to muscle system, Re-initialize setup data on muscle system, Safe delete history,	
IV	Disconnect muscle objects, directions, displaces, Disconnect muscle smart collides. Setup for relative sticky deformation, Setting selected muscles as relative and non relative. Muscle objects: connecting, dis connecting and deleting muscle objects. Base pose for muscle objects, Paint muscle weights options. Muscle Weighting: applying, saving, mirror, transfer and prune weights. Defining muscle direction. Displace: create muscle displace, connecting and dis connecting muscle displace nodes.	12
V	Creating smart muscle collisions and self collision options. Muscle caching. Working with Muscle rig. Introduction to automated rigging systems and methods. "Embedding small scripts in the hierarchy control system. to save time and facilitate handling". Advanced rigging.Vertex weighting techniques. Rigging solutions to Anatomical Problems. Using advanced rigs to archive natural articulation of character.	12

SuggestedReadings:

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

Suggestedequivalentonline learning sources:

Maya Help | Autodesk

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: Diploma		**Year:**2nd	**Semester:**IV
CourseCode:BSA403	**CourseTitle:**Digital Compositing (Adobe after effects)		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will have a solid understanding of After Effects' user interface, workspace, and essential tools necessary for digital composition.		
CO2:	hey will be capable of creating various visual effects, such as explosions, fire, smoke, and particle effects, using After Effects' built-in features or third-party plugins.		
CO3:	tudents will learn how to combine multiple elements, such as live-action footage, 3D renders, images, and visual effects, to create seamless and realistic compositions.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:3** **3**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	What is compositing? Types of compositing. Various softwares of compositing. About Adobe after effects. Introduction to after effects.	12
II	About work spaces. About project panel. About time panel. About compositing panel. About compositing settings. How to import illustrator and Photoshop files.	12
III	About animation in after effects. Keying various properties like opacity, position, rotation, scale, anchor point. Copying and pasting key frames. What is pre-compose or nesting. About blending layers and compositing	12
IV	Working with video. Creating common motion graphic elements. Color correction. Power of effects in after effects. Mastering masking and shape layers. Creating text and animating. Becoming more efficient by using markers, aligning things. About painting in aftereffects	12
V	Advanced animation (puppet animation, using graph editor). Working with Photoshop files. Project: animating elements from a photo. Playing with time. About 3d compositing in aftereffects. About keying-working with green or blue screen. Stabilizing and tracking motion.	12

SuggestedReadings:

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

Suggestedequivalentonline learning sources

VIDEO COPILOT | After Effects Tutorials, Plug-ins and Stock Footage for Post Production Professionals

(31) Video Copilot - YouTube

After Effects Tutorials . Learn how to use After Effects (adobe.com)

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: Diploma		**Year:**2nd	**Semester:**IV
CourseCode:BSA404		CourseTitle:MAYA Rigging PRACTICAL	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	**Understanding of Rigging Fundamentals**: Students will have a solid understanding of rigging fundamentals, including joint hierarchies, inverse and forward kinematics, and rigging constraints.		
CO2:	**Creation of Functional Skeletons**: They will be able to create functional and well-organized skeleton structures for characters or objects, ensuring proper joint placement and orientation.		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic	No.of Lectures
	Creating a biped rig or Quadruped rig or Insect rig. Mechanical rig, Vehicle rig. Rigging various props.	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia		
Programme/Class: Diploma	**Year:**2nd	**Semester:**IV
CourseCode:BSA405	**CourseTitle:**Digital Compositing (Adobe after effects)Practical	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:	
CO1:	They will learn a variety of compositing techniques, such as layering multiple elements, masking, blending, and merging visual elements seamlessly.	
CO2:	Students will be capable of creating visual effects by combining live-action footage, computer-generated imagery (CGI), and other elements to generate realistic and engaging scenes.	
CO3:	Students will learn to track objects and stabilize footage, ensuring elements align correctly with the live-action background.	
Credits:2	**CoreCompulsory**	
Max.Marks:25+75	**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4		

Unit	Topic	No.of Lectures
	Wire removals, Rotoscopy. Color correction, Keying. Tracking and stabilizing. Title effects, applying various effects.	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: BachelorofScience		**Year:**3rd	**Semester:**V
CourseCode:BSA501	**CourseTitle:**3D character Animation (Maya)		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will be proficient in using industry-standard 3D animation software, such as Autodesk Maya, Blender, or other similar tools, to create and manipulate animated characters.		
CO2:	Students will have a solid understanding of the fundamental principles of animation, including timing, spacing, squash and stretch, anticipation, follow-through, and other essential techniques that bring characters to life.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:3** **3**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	Producing natural articulation of realistic & semi-realistic, imaginary characters. Body language, attitude, character interaction, Animal walk& run cycles.	12
II	Biped Character walk cycles. Biped Character run cycles. Acting in Animation Facial animation and lip-sync	12
III	Nonlinear Animation with trax editor. Working with character sets and clips.	12
IV	QUADRUPED Character Animation. Character redirection. Character remapping. Using trax and clips with particle animations.	12
V	Getting free stock motion capture files. Applying motion capture using retargeting. Working with clips to tweak motion capture files. Non-Destructive animation with clips.	12

SuggestedReadings:

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

Suggestedequivalentonline learning sources:

3ds Max Online Training Courses | LinkedIn Learning, formerly Lynda.com

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: BachelorofScience		**Year:**3rd	**Semester:**V
CourseCode: BSA502	**CourseTitle:**Maya Lighting		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students will learn different lighting techniques, including global illumination, area lights, spotlights, ambient lighting, and more. They will understand how to use these techniques to create realistic and visually appealing scenes.		
CO2:	Students will gain a comprehensive understanding of the various lighting tools and features available in Autodesk Maya, a 3D computer graphics software widely used in the animation, visual effects, and gaming industries.		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:3** **3**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	Introduction to CG Lighting. Working with Maya Lights 1-Point, Direct, Spot. Working with Maya Lights 2-Ambient, Area and Volume.	12
II	Direct Illumination-Creating and Illuminating a Stage Show. Three Point Lighting and Exterior Lighting.	12
III	Cast shadows, decay rate, Previewing lighting and shadows Creating depth map Shadow, creating ray traced shadows and radiosity. Concept of lighting system and shadows.	12
IV	Creating area light shadows, setting area light visibility, Creating soft shadows with spot lights Indirect lighting: Setting illumination for interiors Arnold Renderer in maya.	12
V	Skydome, Physical sky shader, Volumetric light, Atmospheric fog, Photometric light, Mesh light Plugins Vray Lighting HDRI. Corona Lighting	12

SuggestedReadings:

Lighting for digital video & television By John Jackman (Focal press).

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

Suggestedequivalentonline learning sources:

(29) Maya 101 - YouTube

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia			
Programme/Class: BachelorofScience		**Year:**3rd	**Semester:**V
CourseCode:BSA503	**CourseTitle:**Maya rendering		
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	students will be taught about rendering settings, optimization, and how to balance quality with render times to achieve efficient and visually impressive results.		
CO2:	The course will cover shading and texturing techniques to add materials and surface properties to 3D models, making them appear more lifelike when illuminated by various light sources		
Credits:4	**CoreCompulsoryandMinorelectiveforstudentsofotherSubject/Faculty**		
Max.Marks:25+75	**Min.PassingMarks:33**		
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):4-0-0			

Unit	Topic	No.of Lectures
I	Rendering and Render Setup: About rendering and renderers: Introduction to rendering, Hardware, software, and vector rendering. Renderers: Maya Software renderer, Maya Hardware renderer. Brief about Maya Vector renderer, Arnold renderer . Rendering menus: Render View , Hardware Render Buffer, Render Settings , Hyper shade , Rendering Flags, Shading Group Attributes, Approximation Editor, Custom Text Editor. Rendering Windows and Editors:	12
II	Render settings: Maya Software tab: Edge anti-aliasing, Number of Samples, Multi-pixel Filtering, Contrast Threshold, Field Options, Ray tracing Quality, Motion Blur, Render Options, Memory and Performance Options, IPR Options, Render settings: Common tab options: Color Management, File Output, Frame Range, Renderable Cameras, Image Size, Render Options. Render View: Menu bar and View toolbar options Camera set up for rendering: Cameras: Motion blur and depth of field, Framing objects with a camera: Camera aim, Angle of view (focal length),Safe display regions for TV production, Clipping planes.	12
III	Create and use a camera: Create a camera, Adjust a camera's attributes, Make an existing camera renderable, Turn scene view guidelines on or off,Adjust depth of field, Camera limitations, Look through (select) acamera, Frame your scene.Panning and zooming in 2D Using a stereoscopic camera. Tessellation and Approximation: Tessellate NURBS surfaces, Tessellate polygonal surfaces, Tessellate subdivision surfaces.	12
IV	**Rendering a scene:**Creating shading materials for objects,Refining shading materials for objects,Maya renderers, Rendering a single frame using IPR,Rendering using the mental ray for Maya renderer,Batch rendering a sequence of animation frames, Viewing a sequence of rendered frames. **Shading surfaces**: About shading and texturing surfaces, Surface Relief, BackgroundsReflection and Environment, Atmosphere, Baking textures and Pre-lightingmental ray for Maya Shading, Render node utilities, Shading menus, Shading Windows and Editors, Shading Nodes.	12
V	**Arnold for Maya rendering** Render view,AOV's,Ray depth Introduction to ArnoldRender Layers: Render layer overview, working with render layers Different layer examples, creating render layers Splitting a scene into render layers Applying render layer presets Comparing render passes and render layers Batch-rendering passes, Compositing in After Effects Rendering the EXR image format Render tiles in the Maya Software renderer, Visualize interactively in	12

	the scene view, Visualize scenes and render images.	

SuggestedReadings:

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

Suggestedequivalentonline learning sources:

Maya Getting Started (autodesk.com)

Thiscoursecanbeoptedasanelectivebythestudentsoffollowingsubjects:studentsofother Subject/Faculty

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
ClassInteraction	5
Quiz/Assignments	5
Seminar/Presentation	5
UnitTest/ClassTest	10
Total	25

CoursePrerequisites: Students must have passedtheir 10+2 level of education from a recognized educationalBoard.

Subject: Animation & Multimedia		
Programme/Class: BachelorofScience	**Year:**3rd	**Semester:**V
CourseCode:BSA504	**CourseTitle:**3D character Animation (Maya)-PRACTICAL	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:	
CO1:	Students will have a solid understanding of the fundamental principles of animation, including timing, spacing, squash and stretch, anticipation, follow-through, and other essential techniques that bring characters to life.	
CO2:	Students will be proficient in using industry-standard 3D animation software, such as Autodesk Maya, Blender, or other similar tools, to create and manipulate animated characters.	
CO3:	Students will be proficient in using industry-standard 3D animation software, such as Autodesk Maya, Blender, or other similar tools, to create and manipulate animated characters.	
Credits:2	**CoreCompulsory**	
Max.Marks:25+75	**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4		

Unit	**Topic**	**No.of Lectures**
	Biped walk/run/jump Quadruped walk/run/jump. Lifting weights. Pulling or pushing objects. Climbing a wall or staircase.	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	**Marks**
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: BachelorofScience		**Year:**3rd	**Semester:**V
CourseCode:BSA505		**CourseTitle:**Maya Lighting / rendering -Practical	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	Students may be given hands-on assignments or a final project to apply the learned techniques, culminating in a portfolio-ready piece that showcases their understanding of Maya lighting and rendering.		
CO2:	Students may be given hands-on assignments or a final project to apply the learned techniques, culminating in a portfolio-ready piece that showcases their understanding of Maya lighting and rendering.		
CO3:	Students will gain a comprehensive understanding of the various lighting tools and features available in Autodesk Maya, a 3D computer graphics software widely used in the animation, visual effects, and gaming industries.		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic	No.of Lectures
	Basic Lighting Concepts. Creating and placing lights Shadows Lighting Effects. Create a scene an interior lighting Create a scene of Target Light, Make a Project on Color temperatures and Exposure controls Render a exterior scene with Hdri Product lighting with Studio light setup	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: BachelorofScience		**Year:**3rd	**Semester:**VI
CourseCode:BSA601		**CourseTitle:**Minor project (Individual)-PRACTICAL	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	the Minor Project (Individual) course provides students with a practical and hands-on experience, preparing them to undertake more significant projects in their future academic or professional endeavors. It also fosters independence, problem-solving abilities, and critical thinking skills, which are valuable traits in various fields and industries		
CO2:	the Minor Project (Individual) course provides students with a practical and hands-on experience, preparing them to undertake more significant projects in their future academic or professional endeavors. It also fosters independence, problem-solving abilities, and critical thinking skills, which are valuable traits in various fields and industries		
CO3:	By completing an individual minor project, students will build self-reliance and confidence in their ability to take ownership of a project from start to finish.		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks:33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic	No.of Lectures
	Students to do individual project from any of the modules (Preproduction or 2danimation or 3D modelling / texturing / animation or visual effects or post production etc).	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

Subject: Animation & Multimedia			
Programme/Class: BachelorofScience		**Year:**3rd	**Semester:**VI
CourseCode:BSA602		**CourseTitle:**Project &Portfolio development-Practical	
Courseoutcomes:	Oncompletionofthecourse,thestudentwillbeableto:		
CO1:	the Project & Portfolio Development course aims to empower students with the necessary skills and knowledge to manage projects efficiently, build a strong professional portfolio, and navigate the job market successfully in their chosen field of expertise		
CO2:	the Project & Portfolio Development course aims to empower students with the necessary skills and knowledge to manage projects efficiently, build a strong professional portfolio, and navigate the job market successfully in their chosen field of expertise		
CO3:	the Project & Portfolio Development course aims to empower students with the necessary skills and knowledge to manage projects efficiently, build a strong professional portfolio, and navigate the job market successfully in their chosen field of expertise		
Credits:2		**CoreCompulsory**	
Max.Marks:25+75		**Min.PassingMarks: 33**	
TotalNo.of Lectures-Tutorials-Practical(inhoursperweek):0-0-4			

Unit	Topic	No.of Lectures
	Students to design a project and work in a group with every individual contributing to various aspects of the project. Student to develop a portfolio for future placement and career.	**60**

SuggestedContinuousEvaluationMethods:

ContinuousInternalEvaluationshallbebasedonallottedAssignmentandClassTests.Themarksshall

InternalAssessment	Marks
RecordFile	5
VivaVoce	5
PracticalAssessment	15
Total	25

CoursePrerequisites: Diploma

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