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Pimpri Chinchwad Education Trust's

Pimpri Chinchwad University

Sate, Pune - 412106

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Curriculum Structure

BSc in Animation, VFX and Multimedia Sciences (2025 Pattern)

School of Media and Communication Studies

Effective from Academic Year 2026-27
Program Structure

Preamble

Media has an increasingly significant impact on our daily lives. The training offered is designed to provide students with the skills and knowledge necessary to succeed in various roles within the TV industry, Print Industry, Advertising Industry, Radio Industry, Digital Media, News Portals and more.

This undergraduate program in mass communication, typically covers Principals of Communication, Reporting and Writing skills, Print and TV Journalism, Beats of Journalism (Sports, Political, Entertainment), Development Communication, Advertising and Public Relations, Graphics and Software's, Photojournalism, Film Appreciation, Media Management, Media Ethics-Laws along with basket of subjects related to Media. Students also master in Audio- Visual Production, honing their skills in Camera and Visual Editing. School of Media is imparting practical, hands-on experience, with the state-of-the-art facilities, including studio, editing suites and equipment. Students will be part of various media projects and productions, giving them valuable experience and building their portfolios to the world of Print and Electronic Media.

Vision and Mission of Program:

Vision:

To build a strong foundation in traditional media forms like print, radio and television as well as in the latest digital media technologies and platforms.

Mission:

The mission of a school of media is to provide students with a comprehensive education in media, for successful careers in the media industry.

The school should strive to:

- Provide a cutting-edge education and challenging curriculum for the new media.
- Encourage innovation, experimentation, and collaboration across different media forms and disciplines, fostering creativity and adaptability.
- Emphasize the ethical and social responsibilities of media
- Elaborating the role of media in shaping society and culture.

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Program Educational Objectives:

Program Educational Objectives (PEOs) for a BA in Journalism, Media and Communication Studies program are as follows:

- PEO 1:To provide students with knowledge and skills to become leading experts in the field of Journalism, Media and Communication Studies
- PEO 2:To provide an innovative and comprehensive curriculum that integrates theoretical knowledge with practical experience, research opportunities, and professional development
- PEO 3:To groom the student's overall personality for professional growth.
- PEO 4:To inculcate values and ethics among the students and making them aware about their social commitments.

Program Outcome :

PO1	Problem-solving skills: Capability to solve problems in familiar and non-familiar contexts and apply one's learning to real-life situations.
PO2	New Skills: To have knowledge of modern tools.
PO3	Critical thinking: Capability to apply analytic thought to a body of knowledge, including the analysis and evaluation of policies and practices, as well as evidence, arguments, claims, beliefs and the reliability and relevance of evidence.
PO4	Creative thinking: Ability to create or think in different and diverse ways about same issues or scenarios deal with problems and situations that do not have simple solutions.
PO5	Communication Skills: Skills that enable a person to listen carefully, read texts and research papers analytically and present complex information in a clear and concise manner to different groups/audiences.
PO6	Coordinating/collaborating with others: Ability to work effectively and respectfully with diverse teams, facilitate cooperative or coordinated effort on the part of a group, act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.
PO7	Leadership readiness/qualities: Capability for mapping out the tasks of a team or an organisation and setting direction.
PO8	Environmental awareness and action: Demonstrate the Acquisition and ability to apply the knowledge, skills, attitudes, and values required to take appropriate actions for mitigating the effects of environmental degradation, climate change and pollution, effective waste management, conservation of biological diversity, management of biological resources, forest and wildlife conservation, and sustainable development and living.
PO9	Skills to apply digital and technological solutions: Demonstrate the ability for judiciously using and deploying information and communication tools and technologies to improve teaching-learning process and provide enriched learning experiences to students to enable them to achieve enhanced learning outcomes.
PO10	Entrepreneurship: Ability to identify entrepreneurial opportunities and leverage managerial & leadership skills for founding, leading & managing startups as well as professionalizing and growing family businesses.

Program Specific Object

PSO1	Critically evaluate media content and actively engage with diverse platforms to contribute to informed public discourse.
PSO2	Master multimedia storytelling techniques to produce compelling content across diverse media formats and platforms.

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Sr. No.	Type of course	Abbreviations
1	Major	MAJ
2	Elective (Minor Stream/Vocational/Program Specific)	MIN
3	Open Electives	OE
4	Ability Enhancement Courses	AEC
5	Skill Enhancement Courses	SEC
6	Vocational Skill Course	VSC
7	Summer Internship/ On Job Training	OJT
8	Project	PROJ
9	Field Project	FP
10	Indian Knowledge System	IKS
11	Community Engagement Program	CEP
12	Value Education Course	VEC

Sr. No.	Type of course	No. of Courses	Total Credits for Bachelor's with Honors Research		**No. of Courses**	Total Credits for Bachelors Degree	
			No	%		No	%
1	Major	25	88	51.16	23	84	61.76
2	Minor	5	10	5.81	5	10	7.3
3	Open Electives	6	12	6.97	6	12	8.82
4	Ability Enhancement Courses	12	19	11.04	12	19	13.6
5	Skill Enhancement Courses	6	7	4.06	6	7	5.14
6	Summer Internship/On Job Training	2	8	4.65	1	4	2.94
7	Major Project	2	16	9.30	-	-	
8	Indian Knowledge System	2	-	-	2		
9	Research Project	2	12	6.97	-	-	
10	Audit course (Value Education Course)	6	-	-	6	-	
	Total	**-**	**172**	**100**		**136**	**100%**

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CREDIT DISTRIBUTION: SEMESTER WISE

Sr. No.	Type of course	No. of Credits/Semester								Total
		1	2	3	4	5	6	7	8	
1	Major	14	14	14	14	10	14	4	4	88
2	Minor	-	2	2	2	2	2			10
3	Open Electives	2	2	2	2	2	2	-	-	12
4	Ability Enhancement Courses	4	3	3	3	3	3	-	-	19
5	Skill Enhancement Courses	2	1	1	1	1	1	-	-	7
6	Vocational Skill Course									
7	Summer Internship/On Job Training	-	-	-	-	4	-	4		8
8	Field Project	-	-	-	-	-	-	8	8	16
9	Indian Knowledge System	-	-	-	-	-	-	-	-	-
11	Research Project	-	-	-	-	-	-	4	8	-
12	Audit course(Value Education Course)	-	-	-	-	-	-	-	-	-
Total		22	22	22	22	22	22	20	20	172

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BSc in Animation, VFX and Multimedia Sciences
Curriculum Structure Semester V

Course Code	Course Name	Course Type	Teaching Scheme						Assessment Scheme		
			Th	Prac	Tut	Credit	Hrs		CIA	ESA	Total
UBSAM301	Lighting, Rendering & Digital Compositing	**MAJM**	1	2	-	3	5		**40**	**60**	**100**
UBSAM302A/ UBSAM302B	Character Rigging (Anim) / FX Dynamics & Simulation (Particles, Fluids, Destruction) (VFX)	**MAJM**	1	2	-	3	5		**40**	**60**	**100**
UBSAM304A/ UBSAM304B	Cinematic Techniques (Anim) / Matchmoving & Camera Tracking (VFX)	**MAJM**	2	2	-	4	6		**40**	**60**	**100**
UBSAM303A/ UBSAM303B	Acting for Animation & Body Mechanics (Anim) / Advanced Compositing & Rotoscopy (VFX)	**MAJM**	2	2	-	4	6		**40**	**60**	**100**
UBSAM305	Open Elective I	**OE**	2	-	-	2	2		**20**	**30**	**50**
UBSAM306	Advanced 3D Modelling	**SEC**	0	1	-	1	2		**50**	-	**50**
UBSAM307	VFX Production Pipeline & Workflow	**AEC**	0	1	-	1	2		**50**	-	**50**
ACALR301/A CEVES301	Aptitude Test / Environmental Studies	**AC**	1	-	-	-	1		-	-	-
UFL303	Foreign Language 3	**AEC**	2			2	2		**50**		**50**
	Minor - 4	**MIN**	2	-	-	2	2		**20**	**30**	**50**
		Total	**13**	**10**	**0**	**22**	**33**		**350**	**300**	**650**

Open Elective I		
UBSAM305	UBSAM305A	**AI Tools for Media 1**
	UBSAM305B	**Transmedia Storytelling 2**

Foreign Language

Course Code	Course Type	Subject name: Foreign Language 3
UFLI 201A	AEC	German
UFLI 201 B	AEC	Japanese

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BSc in Animation, VFX and Multimedia Sciences
Curriculum Structure Semester VI

Course Code	Course Name	Course Type	Teaching Scheme						Assessment Scheme		
			Th	Prac	Tut	Credit	Hrs		CIA	ESA	Total
UBSAM308	Creature & Stylized Modelling Techniques (Anim) / Digital Matte Painting & Environment Compositing (VFX)	MAJM	1	3	-	4	7		40	60	100
UBSAM309	Advanced Character Animation & Acting (Anim) / Advanced FX & Procedural Simulation (VFX)	MAJM	1	3	-	4	7		40	60	100
UBSAM310	Project in Animation & VFX	MAJM	-	4	-	4	8		40	60	100
UBSAM311	Internship / Industry Training	MAJM	0	-	-	4	-		40	60	100
UBSAM312	Open Elective II	OE	2			2	2		20	30	50
ACEVES301/ ACALR301	Environmental Studies / Aptitude Test	AC	1			-	1		-	-	-
UFL303	Foreign Language 4	AEC	2			2	2		50		50
	Minor - 5	MIN	2	-	-	2	2		20	30	50
		T	9	10	-	22	29		250	300	550

Exit Option : Exit Option: Award of UG Degree

Open Elective II		
UBSAM312	UBSAM312A	**Transmedia Storytelling 1**
	UBSAM312B	**AI Tools for Media 2**

Foreign Language

Course Code	Course Type	Subject name: Foreign Language 4
UFLI 201A	AEC	German
UFLI 201 B	AEC	Japanese

Abbreviations: Course Abbreviation; Th = Theory , Tut = Tutorial, Pr = Practical , Hrs = Hours , Cr = Credits ; CIA = Continuous Internal Assessment , ESA = End Semester Assessment , PR = Practical Exam , OR= Oral Exam

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COURSE CURRICULUM

Name of the Program:	UBSAM301	Semester: V	Level: UG
Course Name	Lighting, Rendering & Digital Compositing	Course Code/ Course Type-	UBSAM301 /MAJM
Course Pattern	2025	Version	1.0

Teaching Scheme					Assessment Scheme		
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
1	2	0	3	5	40	60	-

Pre-Requisite: NIL

Course Objectives (CO):	The objectives of Lighting, Rendering & Digital Compositing are: 1. To develop advanced understanding of cinematic lighting principles for film and VFX production.. 2. To apply physically based rendering workflows using Maya and Arnold. 3. To create multi-pass renders and integrate AOV workflows for compositing. 4. To perform professional compositing using node-based compositing software. 5. To produce photorealistic rendered shots integrated with live-action or CG environments.
Course Learning Outcomes (CLO):	Students would be able to: 1. Design cinematic lighting setups for interior, exterior, and character shots. 2. Configure rendering settings and optimize render outputs using Arnold. 3. Generate and manage AOVs and render passes efficiently. 4. Composite rendered layers professionally using Nuke or Afte-Effects. 5. Produce industry-standard final rendered and composited sequences.

Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Fundamentals of Cinematic Lighting: • Principles of light and color theory • Three-point lighting techniques • Interior and exterior lighting workflows • HDRI lighting and image-based lighting • Mood creation and storytelling through lighting	**CLO 1**	**9**
UNIT II		
Advanced Rendering Techniques: • Arnold renderer workflow in Maya • Physically Based Rendering (PBR) • Render settings optimization • Sampling, ray depth, motion blur, and depth of field • Rendering characters, environments, and props	**CLO 2**	**9**
UNIT III		
Materials, Shading & Look Development: • Arnold shaders and material networks • Subsurface scattering and reflections • Texture integration and shading workflow • Light linking and render layers • Scene look development techniques	**CLO 3**	**9**
UNIT IV		
Multi-pass Rendering & AOV Workflow: • Introduction to AOVs and render passes • Open EXR workflow • Render layers and light groups • Utility passes and ID mattes • Render optimization and batch rendering	**CLO 4**	**9**
UNIT V		
Digital Compositing in Nuke/ After-Effects: • Node-based compositing workflow • Color correction and grading • Multi-pass compositing techniques • Integration of CG with live footage • Final output and compositing pipeline	**CLO 5**	**9**
Total Hours		**45 Hours**

Learning resources:

Textbooks:

1. Digital Lighting and Rendering – Jeremy Birn
2. The Art and Science of Digital Compositing – Ron Brinkmann
3. Professional Lighting and Rendering Techniques – GSN

Online References:

1. https://youtu.be/GRoW4P5wco0
2. https://youtu.be/BWh6p2p4-6c?list=PLIi3DnFfUZQGiTJ6Y_LpmzS7rksnVCOhJ
3. https://youtu.be/eczuLhAW-_M?list=PLeWBNot0gcvYZB8rQ1M82w8r-DpAh3h9G
4. https://youtu.be/vN6uJtbTNLc?list=PLwxLUWVIZu5niqtw5bvOxqOfXbod9qcsp

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Name of the Program:	UBSAM302A	Semester: V	Level: UG
Course Name	Character Rigging [Anim]	Course Code/ Course Type-	UBSAM302A /MAJM
Course Pattern	2025	Version	1.0

Teaching Scheme					Assessment Scheme		
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
1	2	0	3	5	40	60	-

Pre-Requisite: NIL

Course Objectives (CO):	The objectives of Character Rigging are: 1. To understand the principles and workflow of character rigging. 2. To develop skeletal setups for biped and quadruped characters. 3. To implement constraints and controller systems in Maya. 4. To create mechanical and deformation rigs. 5. To prepare animation-ready rigs for production.
Course Learning Outcomes (CLO):	Students would be able to: 1. Create skeleton structures and rig hierarchies in Autodesk Maya for character animation workflows. 2. Apply IK/FK systems, constraints, and controllers to achieve efficient character movement and control. 3. Develop mechanical rigging systems for objects, props, and hard-surface animations. 4. Construct quadruped and character rigs with proper deformation techniques for realistic animation performance. 5. Design animator-friendly rigs optimized for production environments and animation pipelines.

Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Introduction to Rigging: • Rigging pipeline overview • Joint creation and orientation • Hierarchy and parenting • Naming conventions • Basic controller creation	**CLO 1**	**9**
UNIT II		
Constraints & Deformation Systems: • Parent, point, orient, and aim constraints • IK and FK systems • Skinning basics • Weight painting techniques • Deformation principles	**CLO 2**	**9**
UNIT III		
Mechanical Rigging: • Rigging mechanical objects • Piston and gear systems • Vehicle rigging basics • Constraint-driven animation setups • Automation using expressions	**CLO 3**	**9**
UNIT IV		
Character Rigging: • Biped rig creation • Facial rigging basics • Blend shapes and deformers • Advanced controller systems • Animator-friendly interfaces	**CLO 4**	**9**
UNIT V		
Quadruped Rigging: • Quadruped anatomy study • Spine and limb rigging • Tail and secondary controls • Walk-cycle support systems • Final rig testing and optimization	**CLO 5**	**9**
Total Hours		**45 Hours**

Learning resources:

Textbooks:

1. The Art of Rigging – Kiaran Ritchie
2. Stop Staring: Facial Modeling and Animation Done Right – Jason Osipa
3. Inspired 3D Character Setup – David Parrish

Online References:

1. https://youtu.be/j4PKMG58TaI
2. https://youtu.be/C6RmkC-fRqg
3. https://youtu.be/M0W7cT2DUDY?list=PLIV47uRi3f2VyGDn4P8fzZqhi5Q7TYILt
4. https://youtu.be/LGbfctZZqYw?list=PLgala72Uap1rtI7sy75fDHqV7VKQBMknt

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Name of the Program:	UBSAM302B	Semester: V	Level: UG
Course Name	FX Dynamics & Simulation (Particles, Fluids, Destruction) [VFX]	Course Code/ Course Type-	UBSAM302B /MAJM
Course Pattern	2025	Version	1.0

Teaching Scheme					Assessment Scheme		
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
1	2	0	3	5	40	60	-

Pre-Requisite: NIL

Course Objectives (CO):	The objectives of FX Dynamics & Simulation (Particles, Fluids, Destruction are: 1. To introduce students to dynamics and simulation workflows in Maya. 2. To create particle and fluid-based effects. 3. To understand rigid body and soft body dynamics. 4. To simulate cloth, hair, and environmental effects. 5. To integrate FX simulations into animation and VFX scenes.
Course Learning Outcomes (CLO):	Students would be able to: 1. Create basic particle simulations in Autodesk Maya for dynamic visual effects. 2. Apply rigid body and soft body dynamics to simulate realistic physical interactions. 3. Simulate cloth and hair systems using dynamic tools and physics-based techniques. 4. Produce environmental effects such as smoke, fire, and atmospheric simulations for visual storytelling. 5. Integrate FX elements into rendered scenes for cohesive and production-ready outputs.

Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Introduction to Dynamics: • Dynamics workflow overview • Maya nDynamics system • Gravity and force fields • Collision systems • Basic particle setup	**CLO 1**	**9**
UNIT II		
Particle Effects: • Particle emitters • Instancers and sprites • Particle expressions • Rain, dust, and spark effects • Cache management	**CLO 2**	**9**
UNIT III		
Rigid & Soft Body Dynamics: • Rigid body simulations • Destruction basics • Soft body dynamics • Collision handling • Dynamic constraints	**CLO 3**	**9**
UNIT IV		
Cloth & Hair Simulation: • nCloth workflow • Garment simulation basics • Hair and fur systems • Wind and environmental interaction • Cloth caching and optimization	**CLO 4**	**9**
UNIT V		
Fluid & Environmental Effects: • Smoke simulation • Fire and explosions • Liquid simulation basics • Atmospheric effects • Rendering FX passes	**CLO 5**	**9**
Total Hours		**45 Hours**

Learning resources:

Textbooks:

1. Maya Dynamics – Alias Publications
2. Introducing Autodesk Maya – Dariush Derakhshani
3. Computer Animation Complete – Rick Parent

Online References:

1. https://youtu.be/lSLF8vwmbfU?list=PLIi3DnFfUZQHLnFZUjWKqZKpsnH_-m0DP
2. https://youtu.be/OPRRhamahQs?list=PL6jLkFksyoUXnDCjCzc3n-jCiszOWSZ8A
3. https://youtu.be/gCs0M5SGBiQ?list=PL7csIum7kaWPeJCOVoxFZqfBRBsiCDJPp

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Name of the Program:	UBSAM303A	Semester: V	Level: UG
Course Name	Cinematic Techniques [Anim]	Course Code/ Course Type-	UBSAM303A /MAJM
Course Pattern	2025	Version	1.0

Teaching Scheme					Assessment Scheme		
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
2	2	0	4	6	40	60	-

Pre-Requisite: NIL

Course Objectives (CO):	The objectives of Cinematic Techniques are: 1. To understand cinematic language and visual storytelling. 2. To apply cinematography principles in animation and VFX. 3. To explore shot composition and camera movement. 4. To understand editing rhythm and continuity. 5. To create cinematic sequences using Maya cameras.
Course Learning Outcomes (CLO):	Students would be able to: 1. Apply cinematic framing and composition techniques to enhance visual appeal and storytelling. 2. Design effective camera movements to support narrative flow and scene dynamics. 3. Utilize visual storytelling principles to communicate emotion, mood, and narrative intent within scenes. 4. Develop shot continuity and pacing techniques for smooth and engaging cinematic sequences. 5. Create cinematic animated sequences that demonstrate professional storytelling and camera language.

Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Introduction to Cinematic Language: • History of Cinematography • Visual storytelling principles • Film grammar basics • Shot types and angles • Cinematic analysis	**CLO 1**	**12**
UNIT II		
Composition & Framing: • Rule of Thirds • Depth and perspective • Leading lines • Camera lens theory • Mood and framing	**CLO 2**	**12**
UNIT III		
Camera Movement Techniques: • Pan, tilt, dolly, crane, and handheld shots • Virtual cameras in Maya • Dynamic camera blocking • Follow and tracking shots • Camera animation principles	**CLO 3**	**12**
UNIT IV		
Lighting & Cinematic Mood: • Film lighting styles • Color psychology • Scene atmosphere creation • Cinematic references • Shot continuity	**CLO 4**	**12**
UNIT V		
Editing & Sequence Development: • Continuity editing • Storyboarding to animatics • Scene pacing • Sound and cinematic timing • Final cinematic sequence production	**CLO 5**	**12**
Total Hours		**60 Hours**

Learning resources:

Textbooks:

1. Cinematography: Theory and Practice – Blain Brown
2. Film Directing Shot by Shot – Steven D. Katz
3. The Visual Story – Bruce Block

Online References:

1. https://youtu.be/n1EKLvdUSac?list=PLEzQZpmbzckX3A_SopJ-krGsV6BERxdwb
2. https://youtu.be/WJCz0iFVv0k

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Name of the Program:	UBSAM303B	Semester: V	Level: UG
Course Name	Matchmoving & Camera Tracking [VFX]	Course Code/ Course Type-	UBSAM303B /MAJM
Course Pattern	2025	Version	1.0

Teaching Scheme					Assessment Scheme		
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
2	2	0	4	6	40	60	-

Pre-Requisite:	NIL
Course Objectives (CO):	The objectives of Matchmoving & Camera Tracking are: 1. To introduce camera tracking and matchmoving fundamentals. 2. To understand the integration of CG with live-action footage. 3. To perform 2D and 3D tracking workflows. 4. To solve and export tracked cameras into Maya. 5. To create believable camera-aligned CG integration.
Course Learning Outcomes (CLO):	Students would be able to: 1. Perform feature tracking on live-action footage to extract accurate motion data. 2. Generate precise camera solves for integrating CG elements into filmed sequences. 3. Integrate tracked camera data into Autodesk Maya for scene reconstruction and animation alignment. 4. Align CG assets with live-action plates to achieve seamless visual integration. 5. Produce basic matchmoved VFX shots combining tracked footage and computer-generated elements.

Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Introduction to Matchmoving: • Matchmoving workflow • Camera tracking fundamentals • Types of tracking • Lens distortion basics • Footage preparation	**CLO 1**	**12**
UNIT II		
2D Tracking Techniques: • Point tracking • Planar tracking basics • Stabilization workflow • Marker management • Tracking cleanup	**CLO 2**	**12**
UNIT III		
3D Camera Solving: • 3D camera tracking • Scene orientation • Point cloud generation • Solving errors and refinement • Ground plane setup	**CLO 3**	**12**
UNIT IV		
Maya Integration Workflow: • Exporting camera data • Scene scaling • CG alignment techniques • Proxy geometry setup • HDRI integration basics	**CLO 4**	**12**
UNIT V		
Production Shot Development: • Set extensions • Camera projection basics • Compositing tracked shots • Final render integration • Matchmove project production	**CLO 5**	**12**
Total Hours		**60 Hours**

Learning resources:

Textbooks:

1. Matchmoving: The Invisible Art of Camera Tracking – Tim Dobbert
2. The Art and Technique of Matchmoving – Erica Hornung
3. Digital Compositing for Film and Video – Steve Wright

Online References:

1. https://youtu.be/y3mPZkI6TpA?list=PL6GYC59wj8mBP7fs1yDEtWc3Yns-lFviG
2. https://youtu.be/ooPn79hfbRg?list=PLQJImk0hXcoW-xFIYSBE7nroBp1N3x0Ut
3. https://youtu.be/Q1GPCEdiK14

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Name of the Program:	UBSAM304A	Semester: V	Level: UG
Course Name	Acting for Animation & Body Mechanics [Anim]	Course Code/ Course Type-	UBSAM304A /MAJM
Course Pattern	2025	Version	1.0

Teaching Scheme					Assessment Scheme		
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
2	2	0	4	6	40	60	-

Pre-Requisite:	NIL
Course Objectives (CO):	The objectives of Acting for Animation & Body Mechanics are: 1. To develop acting skills for animated performances. 2. To understand body mechanics and weight distribution. 3. To apply performance principles in Maya animation. 4. To create believable character emotions and movement. 5. To improve timing, spacing, and physical realism.
Course Learning Outcomes (CLO):	Students would be able to: 1. Animate believable acting performances that convey emotion, personality, and character intent. 2. Create realistic body mechanics animations demonstrating weight, balance, and natural movement. 3. Apply timing and spacing principles effectively to enhance motion quality and animation appeal. 4. Utilize reference-based animation workflows to achieve accurate and performance-driven animations. 5. Produce polished performance shots in Autodesk Maya suitable for professional animation production.

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Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Principles of Acting in Animation: • Acting fundamentals • Observation and references • Emotion and expression • Character motivation • Performance analysis	**CLO 1**	**12**
UNIT II		
Body Mechanics Basics: • Weight and balance • Center of gravity • Walk and run cycles • Jump and lifting mechanics • Physical realism	**CLO 2**	**12**
UNIT III		
Advanced Performance Animation: • Dialogue animation • Facial performance • Gesture and posing • Character interaction • Scene continuity	**CLO 3**	**12**
UNIT IV		
Maya Animation Workflow: • Blocking techniques • Spline workflow • Graph editor refinement • Polish and overlap • Animation cleanup	**CLO 4**	**12**
UNIT V		
Production Shot Development: • Acting shot planning • Reference shooting • Cinematic presentation • Shot polish • Final rendered animation output	**CLO 5**	**12**
Total Hours		**60 Hours**

Learning resources:

Textbooks:

1. The Animator's Survival Kit – Richard Williams
2. Acting for Animators – Ed Hooks
3. Character Animation Crash Course – Eric Goldberg

Online References:

1. Animation Mentor Channel: www.youtube.com/@animationmentor
2. https://youtu.be/RQ31vjgJM2c?list=PLsaewSKhkd9NZFq_4qYt8HH1dx6jL073g
3. https://youtu.be/7dAzk2oeQoA?list=PLsaewSKhkd9NZFq_4qYt8HH1dx6jL073g

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Name of the Program:	UBSAM304B	Semester: V	Level: UG
Course Name	Advanced Compositing & Rotoscopy [VFX]	Course Code/ Course Type-	UBSAM304B /MAJM
Course Pattern	2025	Version	1.0

Teaching Scheme				Assessment Scheme			
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
2	2	0	4	6	40	60	-

Pre-Requisite: NIL

Course Objectives (CO):	The objectives of Advanced Compositing & Rotoscopy are: 1. To understand professional compositing workflows. 2. To perform rotoscoping and masking techniques. 3. To integrate multiple image layers effectively. 4. To apply color correction and keying workflows. 5. To create production-ready VFX composites.
Course Learning Outcomes (CLO):	Students would be able to: 1. Perform clean rotoscoping and matte extraction for effective isolation of visual elements. 2. Composite CG and live-action elements to create seamless visual integrations. 3. Apply chroma keying and cleanup techniques to enhance shot quality and realism. 4. Utilize node-based compositing workflows for efficient VFX pipeline management. 5. Deliver polished VFX composite shots suitable for professional production standards.

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Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Introduction to Compositing: • Compositing pipeline overview • Node-based workflow • Layer integration • Alpha channels • Image formats	**CLO 1**	**12**
UNIT II		
Rotoscopy Techniques: • Roto shapes and splines • Tracking-assisted roto • Garbage mattes • Edge refinement • Matte management	**CLO 2**	**12**
UNIT III		
Keying & Cleanup: • Green screen keying • Spill suppression • Wire and object removal • Paint and cleanup tools • Grain management	**CLO 3**	**12**
UNIT IV		
Color Correction & Integration: • Color matching • Light wrap techniques • Depth compositing • Shadow integration • Atmospheric blending	**CLO 4**	**12**
UNIT V		
Advanced Composite Production: • Multi-pass compositing • Deep compositing basics • Final render output • Sequence management • Production pipeline workflow	**CLO 5**	**12**
Total Hours		**60 Hours**

Learning resources:

Textbooks:

1. The Art and Science of Digital Compositing – Ron Brinkmann
2. Digital Compositing for Film and Video – Steve Wright
3. The VES Handbook of Visual Effects – Jeffrey Okun

Online References:

1. https://youtu.be/OJJ9hu6smqk
2. https://youtu.be/OxX5Q2mZMmI?list=PLqE5eKNsPf4hHRlFMzxk1zqd-Trs5g71-
3. https://youtu.be/vq3etJCtOnc?list=PLEORhUcnT5xP20SlLcxcN5-dmhAeCNjov

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Name of the Program:	UBSAM306	Semester: V	Level: UG
Course Name	Advanced 3D Modelling	Course Code/ Course Type-	UBSAM306 /SEC
Course Pattern	2025	Version	1.0

Teaching Scheme					Assessment Scheme		
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
-	1	0	1	2	50	-	-

Pre-Requisite:	**NIL**
Course Objectives (CO):	The objectives of Advanced 3D Modelling are: 1. To develop advanced organic modelling skills for characters and creatures. 2. To understand anatomy, proportions, and sculpting workflows. 3. To introduce digital sculpting using ZBrush at a beginner level. 4. To integrate sculpting with retopology and production workflows in Autodesk Maya. 5. To create production-ready organic models suitable for animation and VFX.
Course Learning Outcomes (CLO):	Students would be able to: 1. Create anatomically accurate organic models (human and creature) using industry-standard sculpting practices. 2. Sculpt basic to intermediate models utilizing ZBrush tools and workflows for detailed form development. 3. Perform retopology to generate clean, animation-ready meshes suitable for deformation. 4. Generate UV layouts and prepare models for efficient texturing and shading pipelines. 5. Produce portfolio-ready organic 3D assets that meet professional VFX and animation standards.

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Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Fundamentals of Organic Modelling: • Introduction to organic modelling workflow • Understanding human and creature anatomy basics • Proportions and silhouette development • Reference collection and analysis • Base mesh creation in Maya	**CLO 1**	**3**
UNIT II		
Introduction to Digital Sculpting in ZBrush: • Interface and navigation in ZBrush • Basic brushes (Move, Clay, Standard, Smooth) • Dynamesh workflow • Blocking primary forms • Sculpting secondary forms	**CLO 2**	**3**
UNIT III		
Anatomy & Character Sculpting: • Skull and muscle structure basics • Facial anatomy and expressions • Hands, torso, and limbs sculpting • Stylized vs realistic sculpting approaches • Detailing techniques (wrinkles, folds)	**CLO 3**	**3**
UNIT IV		
Retopology & Optimization: • Importance of clean topology • Retopology techniques in Maya • Edge flow for deformation • Low-poly mesh generation • Export workflow between ZBrush and Maya	**CLO 4**	**3**
UNIT V		
UV Mapping, Detailing & Presentation: • UV unwrapping for organic models • Introduction to displacement and normal maps • High-poly to low-poly baking workflow • Basic rendering and presentation • Portfolio-ready character turntable	**CLO 5**	**3**
Total Hours		**15 Hours**

Learning resources:

Textbooks:

1. ZBrush Character Creation: Advanced Digital Sculpting – Scott Spencer
2. Anatomy for Sculptors – Uldis Zarins
3. Digital Sculpting Human Anatomy – Scott Eaton

Online References:

1. https://youtu.be/Ow05MiHVuSg?list=PLcmXp7rHguWNMoIJ-Ws_emIEKyH4mKaAu
2. https://youtu.be/vbOB0czCBxs?list=PL86RlxXns8_DFvLFN9xaAZi1sFA9tryyf
3. https://youtu.be/3GY0l9gJZ2A?list=PLvzY_kPoGiKQX_W9usv-BLNqDAUcwlTaj

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Name of the Program:	UBSAM307	Semester: V	Level: UG
Course Name	VFX Production Pipeline & Workflow	Course Code/ Course Type-	UBSAM307 /AEC
Course Pattern	2025	Version	1.0

Teaching Scheme					Assessment Scheme		
Theory	Practical	Tutorial	Total Credits	Hours	CIA (Continuous Internal Assessment)	ESA (End Semester Assessment)	Practical/Oral
-	1	0	1	2	50	-	-

Pre-Requisite:	NIL
Course Objectives (CO):	The objectives of VFX Production Pipeline & Workflow are: 1. To understand the complete VFX production pipeline. 2. To study departmental workflow integration. 3. To understand asset and shot management systems. 4. To develop collaborative production skills. 5. To prepare students for studio-based production environments.
Course Learning Outcomes (CLO):	Students would be able to: 1. Explain the stages of VFX production, including pre-production, production, and post-production workflows. 2. Understand departmental dependencies and pipeline workflows for efficient project execution. 3. Manage assets and shot versions effectively using production tracking methodologies. 4. Apply production planning and review techniques to ensure quality control and timely delivery. 5. Collaborate effectively within a VFX pipeline structure to achieve cohesive and production-ready outcomes.

Course Contents/Syllabus:
(All the units carry equal weightage in Summative Assessment and equal engagement)

Descriptors/Topics	CLO	Hours
UNIT I		
Introduction to VFX Pipeline: • Pre-production workflow • Production stages • Post-production overview • Studio pipeline structure • Industry roles and responsibilities	**CLO 1**	**3**
UNIT II		
Asset & Shot Management: • File naming conventions • Version control systems • Asset publishing workflow • Shot tracking systems • Pipeline documentation	**CLO 2**	**3**
UNIT III		
Departmental Workflow: • Modelling to rigging workflow • Animation to FX workflow • Lighting and rendering pipeline • Compositing integration • Data exchange formats	**CLO 3**	**3**
UNIT IV		
Production Management: • Scheduling and deadlines • Team collaboration • Review and feedback systems • Quality control • Production troubleshooting	**CLO 4**	**3**
UNIT V		
Final VFX Project Workflow: • Short film pipeline execution • Team-based production • Shot finalisation • Delivery formats • Portfolio and studio preparation	**CLO 5**	**3**
Total Hours		**15 Hours**

Learning resources:

Textbooks:

1. The Filmmaker's Guide to Visual Effects – Eran Dinur
2. The VES Handbook of Visual Effects – Jeffrey Okun
3. Producing Animation – Catherine Winder

Online References:

1. https://youtu.be/DmlOmep2tUA
2. https://youtu.be/_n0ir5V5tX4
3. https://youtu.be/EbjaaAQo3Ss
4. https://youtu.be/JPh_3E7UoUo