ALAGAPPA UNIVERSITY

(Accredited with A+ Grade by NAAC (CGPA: 3.64) in the Third Cycle, Graded as Category-I University and granted autonomy by MHRD-UGC)

DIRECTORATE OF COLLABORATIVE PROGRAMMES

B.SC. Visual Effects

Regulations and Syllabus

[For those who join the Course in July 2023 and after]

CHOICE BASED CREDIT SYSTEM

Regulations and Syllabus

GENERAL INSTRUCTIONS AND REGULATIONS

B.Sc. Visual Effects conducted by Alagappa University, Karaikudi, Tamil Nadu through its Collaborative Institution.

Applicable to all the candidates admitted from the academic year 2023 onwards.

1. **Eligibility:**

   A pass in the Higher Secondary Examination (HSC) conducted by the Government of Tamil Nadu, or an examination accepted as equivalent thereto by the Syndicate for admission to this programme.

2. **For the Degree:**

   The candidates shall have subsequently undergone the prescribed program of study in an institute for not less than three academic years, passed the examinations prescribed and fulfill such conditions as have been prescribed thereof.

3. **Admission:**

   Admission is based on the marks in the qualifying examination.

4. **Duration of the course:**

   The course shall extend over a period of Three years under Semester pattern.

5. **Standard of Passing and Award of Division:**
   a. Students shall have a minimum of 40% of total marks of the University examinations in each subject. The overall passing minimum is 40% both in aggregate of Continuous Internal Assessment and external in each subject.
   b. The minimum marks for passing in each theory / Lab course shall be 40% of the marks prescribed for the paper / lab.
   c. A candidate who secures 40% or more marks but less than 50% of the aggregate marks prescribed for three years taken together, shall be awarded **THIRD CLASS.**
   d. A candidate who secures 50% or more marks but less than 60% of the aggregate marks prescribed for three years taken together, shall be awarded **SECOND CLASS.**
   e. A candidate who secures 60% or more of the aggregate marks prescribed for three years taken together, shall be awarded **FIRST CLASS.**
   f. Only Part-III subjects will be considered for the University academic ranking purpose.
   g. The Practical / Project shall be assessed by the two examiners, by an internal examiner and an external examiner.

6. **Continuous internal Assessment:**
   a. Continuous Internal Assessment for each paper shall be by means of Written Tests, Assignments, Class tests and Seminars
   b. **25 marks** allotted for the Continuous Internal assessment is distributed for Written Test, Assignment, Class test and Seminars.
   c. Internal Assessment - Break-Up of Marks, suggested pattern (Faculty may change the pattern, according to the subject and need)
      a. Two Internal Tests (choose one best out of two) – 50%
      b. Model Test (One model test) – Nil – Should be conducted prior to the University examination. It is a mandate.
      c. Assignments – 25%
      d. Seminar / Case Study – 25%

d. Conduct of the continuous internal assessment shall be the responsibility of the concerned faculty.
e. The continuous internal assessment marks should be submitted to the University at the end of every semester, before the commencement of Semester Exams.
f. The valued answer papers/assignments should be given to the students after the valuation is over and they should be asked to check up and satisfy themselves about the marks they have scored.
g. All mark lists and other records connected with the continuous internal assessments should be in the safe custody of the institution for at least one year after the assessment.

7. Attendance:

Students must have earned 75% of attendance in each course for appearing for the examination.

Students who have earned 74% to 70% of attendance have to apply for condonation in the prescribed form with the prescribed fee.

Students who have earned 69% to 60% of attendance have to apply for condonation on Medical grounds in the prescribed form with the prescribed fee along with the medical certificate / relevant documents.

Students who have below 60% of attendance are not eligible to appear for the examination. They shall re-do the semester(s) after completion of the programme.

8. Examination:

Candidate must complete course duration to appear for the university examination. Examination will be conducted with concurrence of Controller of Examinations as per the Alagappa University regulations. **University may send the representatives as the observer during examinations.** University Examination will be held at the end of the each semester for duration of 3 hours for each subject. Certificate will be issued as per the AU regulations. **Hall ticket will be issued to the students at the end of every semester after submitting "No Dues" certificate to the exam cell, under the aegis of Controller of Examinations of the AU**

9. Question Paper pattern:

Maximum: 75 Marks	Duration: 3Hours
Part A - Short answer questions with no choice	: 10 x 02=20
Part B –Brief answer with either or type	: 05 x 05=25
Part C- Essay – type questions of either / or type	: 03 x 10=30

10. Miscellaneous

a. Every student should possess the prescribed text book for all the subjects, through-out the semester for their theory/lab classes.
b. Every student would be issued an Identity card by the institute/university to identify his/her admission to the course.
c. Every student shall access the library and internet (wi-fi) facilities provided for the self-development and career-development.
d. Every student who successfully completes the course within the stipulated time period would be awarded the degree by the University.

11. Fee structure

Course fee shall be as prescribed by the University and 50% of the course fee should be disbursed to University. Special fees and other fees shall be as prescribed by the Institution and the fees structure must be intimated to the University. Course fees should be only by Demand draft / NEFT and AU has right to revise the fees accordingly.

Semester Pattern

Pattern	Course Fee payment deadline
Semester	Fee must be paid before 10th September of the academic year

12. Other Regulations:

Besides the above, the common regulation of the University shall also be applicable to this programme.

REGULATIONS AND SYLLABUS

B.Sc Visual Effects

SEM	Part	Course Code	Courses	Title of the paper	T/P	Credit	Hrs/ week	Max. Marks		
								Int.	Ext.	Total
I	I	82911T/ 11H/11F	T/OL	Tamil /Other Languages-I	T	3	4	25	75	100
	II	82912	E	General English-I	T	3	4	25	75	100
	III	82913	Core 1	Design & Photography	T	4	5	25	75	100
		82914	Core 2	Design & Photography - Practical	P	4	6	25	75	100
		82915	Allied 1	Introduction to Visual Communication	T	3	3	25	75	100
		82916	Allied 2	Visual Communication Methods	P	3	5	25	75	100
	IV	82917	SEC -I	Value Education	T	2	2	25	75	100
				Library			1			
				Total		**22**	**30**	**175**	**525**	**700**
II	I	82921T/H/F/ TU/M/A/S	T/OL	Tamil/Other Languages-II	T	3	4	25	75	100
	II	82922	E	General English-II	T	3	4	25	75	100
	III	82923	Core 3	Motion Graphics	T	4	5	25	75	100
		82924	Core 4	Motion Graphics - Practical	P	4	6	25	75	100
		82925	Allied 3	Visualization for Production	T	3	3	25	75	100
		82926	Allied 4	Visualization for Production - Practical	P	3	5	25	75	100
	IV	82927	SEC -II	Environmental Studies	T	2	2	25	75	100
		82928A/ 82928B		Internship/ Mini Project	I/ PR	2		25	75	100
				Library			1			
				Total		24	30	**200**	**600**	**800**
III	I	82931T/H/F/ TU/M/A/S/	T/OL	Tamil/Other Languages-III	T	3	4	25	75	100
	II	82932	E	General English-III	T	3	4	25	75	100
	III	82933	Core 5	VFX Production I (Compositing)	T	3	3	25	75	100
		82934	Core 6	VFX Production I (Compositing) - Practical	P	3	5	25	75	100
		82935	Core 7	Fundamental of Videography & Audiography	T	3	3	25	75	100
		82936	Allied 5	VFX Production II (3D for VFX)	T	3	3	25	75	100
		82937	Allied 6	VFX Production II (3D for VFX) - Practical	P	2	4	25	75	100
	IV	82938	SEC-III	Entrepreneurship	T	2	2	25	75	100
		82939A 82939B 82939C	NME-I	1.Adipadai Tamil	P	2	2	25	75	100
				2.Advance Tamil	T					
				3.IT Skills for Employment	T					
				4.MOOC'S	T					
				Total		**24**	**30**	**225**	**675**	**900**
IV	I	82941T/H/F/ TU/M/A/S	T/OL	Tamil /Other Languages -IV	T	3	4	25	75	100
	II	82942	E	General English-IV	T	3	4	25	75	100
		82943	Core 8	Video Editing	T	4	4	25	75	100

	III	82944	Core 9	VFX Production III (FX for VFX)	T	4	4	25	75	100
		82945	Core 10	Video editing & FX for VFX - Practical	P	3	5	25	75	100
		82946	Allied 7	VFX Production IV (Matchmove/ Rotomation & CG Compositing)	T	3	3	25	75	100
		82947	Allied 8	VFX Production IV (Matchmove / Rotomation &CG Compositing)- Practical	P	2	4	25	75	100
		82948		Internship	I	2		25	75	100
	IV	82949A 82949B 82949C	NME-II	1.Adipadai Tamil	P	2	2	25	75	100
				2.Advance Tamil	T					
				3. Small Business Management	T					
				4.MOOC'S	T					
				Total		**26**	**30**	**225**	**675**	**900**
V	III	82951	Core 11	Business of Media	T	4	5	25	75	100
		82952	Core 12	Portfolio & Presentation	T	4	5	25	75	100
		82953A 82953B 82953C	DSE 1	Compositing 1.Rotoscopy 2.Keying 3.Tracking	P	4	5	25	75	100
		82954A 82954B 82954C	DSE 2	CGI for Visual Effects 1.Modelling & Texturing 2.Lighting & Rendering 3.Rigging & Animation	P	4	5	25	75	100
		82955A 82955B 82955C	DSE 3	Matchmove & Rotomation 1. Camera Tracking 2. Object Tracking 3. Rotomation	P	4	5	25	75	100
		82956	Core 13	Practical-VI Portfolio & Presentation	P	2	4	25	75	100
				Career development/employability skills			1			
				Total		**22**	**30**	**150**	**450**	**600**
VI	III	82961	Core 14	Project Management	T	3	4	25	75	100
		82962	Core 15	Emerging Technologies and Trends in VFX	T	4	4	25	75	100
		82963	Core 16	Game Engine for VFX - Practical	P	5	5	25	75	100
		82964A 82964B 82964C	DSE 4	FX & Advanced Compositing 1. FX 2. CFX 3. CG & Live Action Footage	P	4	5	25	75	100
		82965A/ 82965B		Project/ Dissertation	PR/ D	6	12	25	75	100
				Total		**22**	**30**	**125**	**375**	**500**
				Grand Total		**140**	**180**	**1100**	**3300**	**4400**

DSE – Student Choice and it may be conducted by parallel sections. ** NME –Students have to select courses offered by other (Faculty) departments.*** SLC – Voluntary basis T – Theory P – Practical

I – Semester					
Core	**Course code: 82913**	**Design & Photography**	**T**	**Credits: 4**	**Hours: 5**
Objectives	1. Study design fundamentals, characteristics, elements, and principles, emphasizing creativity's significance and development. 2. Introduce photography, covering types, exposure, camera operations, light fundamentals, analysis, focusing, composition, and lenses 3. Explore color theory basics, attributes - hue, value, saturation, harmony, schemes, and psychology, along with models - additive and subtractive 4. Explore typography and graphics, including typeface anatomy, image manipulation. 5. Study grids, layouts, their roles, structures, guidelines, and the design process.				
Unit I	Design fundamental - Characteristics of a good design - visual composition – Elements of design – point - line - shape - form/space - value/tone - texture - color – principles of design – balance - emphasis - dominance - harmony - unity - contrast - repetition - rhythm - proportion – creativity - importance of creativity - developing creativity.				
Unit II	Introduction to Photography – Overview of types of photography – Exposure – Shutter Aperture – ISO – Camera Operations - Fundamentals of Light – Reading & Analysis of Photography.– Focusing System – Composition – Visual design Elements & principles Lenses.				
Unit III	Colour theory – introduction – basics of colour theory – attributes of colour – hue - value - saturation – colour wheel – colour harmony – colour schemes – achromatic - monochromatic - polychromatic - warm colours - cool colours - analogous colours - complementary colours - split compliments - incongruous - triads and tetrads – colour blending – additive model - subtractive model – colour contrast – colour psychology.				
Unit IV	Typography – typeface anatomy - measurements – typeface classifications – type families – spacing and alignment – selecting appropriate fonts – tips and techniques – Graphics – importance of graphics – types of graphics – vector graphics - raster graphics – image manipulation – format conversion – crop and scale – silhouetting – colour manipulation – edge and transparency – assembling images – filtering – envelope/containers.				
Unit V	Grids and layouts – role of grids – structure – grid system and templates – layouts – layout guidelines – important parts of a page layout - factors influencing a layout – organizing layouts – capturing readers attention - design process – approach - stages of design process – demonstrations and guidelines.				

Reference and Text Books

Contran Terence, “Terence Conran On Design”, Conran Publication, 1996.
Davis Graham, “The Designer's Tool Kit 1000 Colours”, Chronicle Books, 2007.
Eisman Leatrice,“Pantone Guide to Communicating With Color”, Grafix Press, 2015.
Paul R. Comon, “Fundamentals of Photo Composition”, Sterling, 2012.
Tom Ang, “Fundamentals of Photography: The Essential Handbook for Both Digital and Film Cameras”, Knopf, 2008.

Online Resources

https://www.creativebloq.com/graphic-design-tips/photoshop-tutorials-1232677
https://www.photoshopessentials.com/
https://www.youtube.com/@BennyProductions
https://www.youtube.com/watch?v=Qj1FK8n7WgY&t=29s

Course Outcomes		**Knowledge level**
CO-1	Grasp design fundamentals, characteristics, elements, principles, and unleash creative potential effectively.	K1

CO-2	Attain a foundational understanding of photography, including types, exposure control, camera operation, light principles, composition, and lens usage.	K2
CO-3	Acquire a foundational understanding of color theory, including its attributes, harmony, schemes, psychological aspects, and practical applications.	K2/K3
CO-4	Master typography and graphics fundamentals for effective design.	K5
CO-5	Gain proficiency in creating effective layouts using grids and understanding the design process.	K2/K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L(1)	S(3)	M(2)	M(2)	L(1)	M(2)	M(2)	L(1)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)
CO3	L(1)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	L(1)	M(2)	M(2)
CO4	L(1)	M(2)	L(1)	M(2)	M(2)	L(1)	S(3)	L(1)	M(2)	M(2)
CO5	L(1)	M(2)	M(2)	S(3)	L(1)	M(2)	M(2)	L(1)	M(2)	M(2
W.AV	1.2	2.2	2	2.2	1.6	2	2.4	1.2	2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	L(1)	M(2)	S(3)	L(1)
CO2	S(3)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	L(1)	M(2)	M(2)	L(1)
CO4	L(1)	L(1)	L(1)	L(1)	M(2)
CO5	M(2)	L(1)	S(3)	M(2)	S(3)
W.AV	2.2	1.2	2.2	2.2	2

S–Strong (3), M-Medium (2), L-Low (1)

I-Semester

Core	Course code: 82914	Design & Photography - Practical	P	Credits:4	Hours:6

Objectives	**1.** Design aiming to be visually pleasing and intriguing. **2.** The primary objective is to communicate the necessary details effectively and clearly.. **3.** Utilize typography which must be easy to read and understand. **4.** Design to pique curiosity or generate interest without revealing all the details upfront. 5. Design and implement the elements and principles of design.

Students are required to create the following:

1. Design a magazine cover layout for the given photographs.
2. Create a Movie Poster for Upcoming Movies.
3. Create a Social awareness Poster.
4. Design a brochure or a product catalog.
5. Create 6 photographs integrating the design elements.
6. Create 6 photographs integrating the design principles.
7. Create 6 photographs integrating Colors theory.
8. Create an image by way of manipulation using the given images.
9. Design an editorial spread sheet for the given photographs.
10. Restore and retouch the given damaged photograph.

Outcomes	**1.** Effective Communication: The poster should convey the intended message clearly and concisely, ensuring that viewers understand the main points and key information presented. **2.** Visual Hierarchy: Learn how to establish a visual hierarchy through typography, color, and layout to guide viewers' attention to the most critical elements of the poster. **3.** Audience Engagement: Understand how to engage the target audience through compelling visuals, engaging content, and a design that resonates with their interests and needs. **4.** Branding and Identity: Explore how to incorporate brand elements (logo, colors, fonts) effectively into the poster design to reinforce the organization's identity and recognition. **5.** Information Organization: Develop skills in structuring and organizing information in a logical and visually appealing manner, ensuring that content flows smoothly from one section to another. **6.** Use of Graphics and Imagery: Learn how to select and incorporate appropriate graphics, images, and illustrations that enhance the message and captivate the audience. **7.** Typography Mastery: Gain expertise in selecting and pairing fonts, using font size and style to emphasize key points, and maintaining readability throughout the poster. 8. Color Psychology: Understand the psychological impact of colors and how to choose a color scheme that aligns with the message and evokes the desired emotions from the audience.

Reference and Text Books:

Contran Terence, “Terence Conran On Design”, Conran Publication, 1996.
Davis Graham, “The Designer's Tool Kit 1000 Colours”, Chronicle Books, 2007.
Eisman Leatrice,“Pantone Guide to Communicating With Color”, Grafix Press, 2015.
Paul R. Comon, “Fundamentals of Photo Composition”, Sterling, 2012.
Tom Ang, “Fundamentals of Photography: The Essential Handbook for Both Digital and Film Cameras”, Knopf, 2008.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	S(3)	M(2)	S(3)
CO2	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	L(1)	S(3)	S(3)	S(3)
CO3	S(3)	M(2)	S(3)	L(1)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	L(1)	S(3)	S(3)	M(2)	M(2)
CO5	S(3)	M(2)	M(2)	L(1)	M(2)	M(2)	L(1)	S(3)	M(2)	M(2
W.AV	3	2	2.2	1.4	2	2	1.8	3	2.2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	L(1)	M(2)	S(3)	M(2)
CO2	M(2)	L(1)	S(3)	M(2)	S(3)
CO3	L(1)	L(1)	S(3)	M(2)	M(2)
CO4	L(1)	L(1)	M(2)	S(3)	S(3)
CO5	M(2)	L(1)	M(2)	M(2)	M(2)
W.AV	1.6	1	2.4	2.4	2.4

S–Strong (3), M-Medium (2), L-Low (1)

I – Semester

Allied	Course code:82915	Introduction to Visual Communication	T	Credits: 3	Hours: 3
Objectives	This form of communication relies heavily on the use of visual aids to help individuals understand and interpret the intended message. The main objective of understanding visual communication is to equip individuals with the knowledge and skills needed to effectively communicate and interpret messages through visual means. The study of signs and symbols. It involves understanding the dynamics of communication, its role in shaping public sentiment, and its influence on various aspects of society. To acquaint students with a wide range of goals related to understanding, analyzing, and effectively utilizing mass media as a means of communication				
Unit I	Introduction to visual communication : Clarity and Comprehension, Engagement, Conveying Emotions, Enhancing Retention, Universal Understanding, Problem Solving, Types of communication Verbal and Non verbal, Barriers of Communication				
Unit II	Understanding Visual Communication: SMCR Model Theoretical concepts and constructs in Communication models, Lasswell‟s Model, Two-step flow theory, Schramm‟s Circular Model, Whites Gatekeeper theory, Dance‟s Helical model, Levels of Communication: Technical, Semantic, and Pragmatic, Enhanced Communication Skills.				
Unit III	Introduction to semiotics: Analysis, aspects of signs and symbols denotations and connotations - paradigmatic and syntagmatic aspects of signs. The semiotic landscape: Language and Visual communication - Narrative representation. Principles of Visual - Sensory Perceptions - Color psychology and theory (some aspects) – Definition - Optical/Visual Illusions etc., Design process –Research - A source of concept - The process of developing ideas, verbal, visual, combination &thematic - Visual thinking - Associative techniques, materials, tools (precision instruments etc.) -Design execution and presentation. Case Studies in communications skills, Ideation and Creative Thinking Lateral Thinking. Designing Messages for different audiences.				
Unit IV	Communication and Public opinion: Understanding Public Opinion Formation, Understanding Communication Theories, Strategic Communication, Global Perspective, Influence on Policy, Media Ethics, Cross-cultural communication.				
Unit V	Mass Media communication: Understanding Media Systems, Media Effects, Media and Democracy, Media and Advertising, Media and Culture, Media Management and Business, Theories of mass media Hypodermic needle model, uses and a gratification model.				

Reference and Text Books

Barnes, S. B. (2011). An introduction to visual communication. *New York*.

Worth, S. (2016). *Studying visual communication*. University of Pennsylvania Press.

Johansen, J. D., & Larsen, S. E. (2005). *Signs in use: an introduction to semiotics*. Routledge.

Glynn, C. J. (1987). The communication of public opinion. *Journalism Quarterly*, *64*(4), 688-697.

Shabir, G., Safdar, G., Jamil, T., & Bano, S. (2015). Mass Media, Communication and Globalization with the perspective of 21st century. New Media and Mass Communication, 34, 11-15.

Online Resources

https://www.youtube.com/watch?v=_TudzupRuCs
https://onlinecourses.nptel.ac.in/noc20_ar15/preview
https://www.ualberta.ca/art-design/areas-of-study/visual-communication-design.html
https://www.youtube.com/watch?v=ubR8rEgSZSU
https://www.youtube.com/watch?v=2p0NRBaQ4Ic

Course Outcomes	**Knowledge level**

CO-1	Convey information and messages effectively, engage the audience, and enhance understanding through the use of visual elements and design principles	K1&K2
CO-2	It allows us to gain insight into how visual elements and design principles are used to convey information, ideas, and messages effectively.	K3&K6
CO-3	Studying semiotics is to develop a deeper understanding of how signs and symbols operate in various aspects of life, from language to culture to communication, and to apply this understanding in diverse contexts, including academia, communication, culture, and creativity	K4
CO-4	Studying communication and public opinion encompass a range of goals related to understanding, analyzing, and influencing how communication shapes public sentiment and attitudes	K5
CO-5	Allows students to connect deeply with mass media communication in gaining an understanding of the media landscape, its effects on society, and the practical skills needed for careers in media and communication fields	K2&K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L(1)	M(2)	M(2)	M(2)	S(3)	M(2)	S(3)	M(2)	M(2)	L(1)
CO2	L(1)	M(2)	M(2)	L(1)	M(2)	M(2)	S(3)	M(2)	S(3)	L(1)
CO3	L(1)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)
CO4	L(1)	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)
CO5	L(1)	M(2)	S(3)	M(2)	M(2)	L(1)	M(2)	M(2)	S(3)	S(3)
W.AV	1	2.2	2.2	1.8	2.2	1.6	2.4	2	2.4	1.8

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	L(1)	M(2)	M(2)	M(2)
CO2	M(2)	L(1)	L(1)	M(2)	L(1)
CO3	M(2)	L(1)	M(2)	M(2)	M(2)
CO4	S(3)	L(1)	M(2)	S(3)	M(2)
CO5	S(3)	L(1)	M(2)	M(2)	S(3)
W.AV	2.4	1	1.8	2.2	2

S–Strong (3), M-Medium (2), L-Low (1)

Course Code: 82916	Title of the Course	Visual Communication Methods	P	Credits: 3	Hours: 5
Objectives	**1.** conveys a message through a series of carefully selected and arranged photographs. The objective is to engage viewers emotionally and intellectually. **2.** To craft a compelling narrative that engages the audience and conveys information or emotions effectively. **3.** Create visually striking and emotionally resonant images that capture the viewer's attention and evoke. **4.** Create a connection between the subject and the audience. **5.** Explore and present different cultures, customs, and traditions through moving images, allowing viewers to immerse themselves in the subject.				
Students are required to create the following: 1. Create a photo documentary to promote a culture through food. 2. Create a photo documentary to promote a culture through people and lifestyle. 3. Create a Photo documentary to address any social issues. 4. Create a video documentary on working people. 5. Create a video documentary on food and lifestyle. 6. Create a video documentary to promote a city. 7. Create an Add Film for a product. 8. Create a mobile short film. 9. Create video content to generate awareness on any social issue. 10. Create video content to promote an event.					
Outcomes	**1.** Still Images: Photo documentaries primarily use still images to convey a story or message. These images capture a moment frozen in time, allowing viewers to study details and emotions in each frame. **2.** Emphasis on Composition: Photographers focus on composition, lighting, and framing to create impactful and visually striking images. Each photo is a work of art on its own. **3.** Narrative through Visuals: Photo documentaries often rely on the power of visual storytelling. Photographers use sequences of images to narrate a story or document a subject, allowing viewers to draw their own conclusions and emotions. **4.** Color Psychology: Understand the psychological impact of colors and how to choose a color scheme that aligns with the message and evokes the desired emotions from the audience. **5.** Moving Images: Video documentaries use moving images, combining visuals with sound, narration, and music. This dynamic medium allows for a more immersive experience. **6.** Engaging Storytelling: Video documentaries often employ a mix of interviews, footage, animations, and other multimedia elements to engage and inform the audience. They can create a more comprehensive and emotional connection with viewers. 7. Narration and Interviews: Video documentaries frequently incorporate spoken narration, interviews with subjects, and ambient sounds to provide context and emotional depth to the story.				
Reference and Text Books: Dmytryk, E., Lund, A., & Hurbis-Cherrier, M. (2018). On film editing: An introduction to the art of film construction. Routledge. Dancyger, K. (2018). The technique of film and video editing: history, theory, and practice. Routledge. Crittenden, R. (2003). Film and video editing. Routledge.					

Online Resources
https://www.movophoto.com/blogs/movo-photo-blog/mobile-filmmaking
https://www.adorama.com/alc/how-to-make-a-documentary/

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)
CO2	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	L(1)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.4	2.4	2.2	2.2	1.8	1.6	2.2	2.4	2.4

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	S(3)
W.AV	2.4	2.6	2.6	2.2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

II-Semester - Core					
Core 3	Course Code 82923	Motion Graphics	T	Credits: 4	Hours: 5

Objective	1. To Understand motion graphics, as well as the Elements & Principles Involved in their creation 2. To inculcate knowledge about Text and 2d Animation. 3. To educate students about Compositing . 4. To gain expertise in creating Fx and Audio editing for Motion Graphics. 5. Acquire in-depth knowledge of Creating 3d Title Animation.
UNIT-I	Introduction to Motion graphics, History of motion graphics, Different types of Motion Graphics-12 Principles of Animation- Element and Principles of Motion Graphics Elements - Typography For Motion Graphics- -Image file Formats and Video file formats
UNIT-II	Animating Psd & Ai Files in After Effects-Text Animation-Kinetic Typography -Path Animation- Infographic Chart Animation - Isometric Icon Animation -Character walk cycle-Character Facial Animation - Fake 3d.
UNIT-III	RotoScope - Keying - Color Correction-2d tracking- Stabilizing-Camera Tracking-Particle System-Paint - Compositing.
UNIT-IV	Use of Camera 3D layers, Usage of Lights, Camera usage in creating Motion Graphics - Displacement Map - Plug-Ins Trapcode particular - Optical flare - Saber- Importance of sound in Motion Graphics - Sound FX and Audio Editing for Motion graphics.
UNIT-V	Introduction to element 3d - importing text ,paths & converting into 3d Object -Applying materials and textures to 3d models & text, shadows - 3d text animation - Usage of groups in Element 3d -Particle Replicator-Particle Look -Animation Engine in Element 3d- Importing OBJ to element 3d -Animation in element 3d, adding effects to element 3d object -Render settings

Reference and Text Books:

1. Wright, S. (2013). Compositing visual effects: Essentials for the aspiring artist. Routledge.
2. Shaw, A. (2015). Design for motion: fundamentals and techniques of motion design. Routledge.
3. Woods, S. (2002). THE ANIMATOR'S SURVIVAL KIT. Film Ireland, (85), 28.
4. Audronis, T. (2014). Lightning Fast Animation in Element 3D. Packt Publishing.
5. Gyncild, B. (2020). Adobe After Effects Classroom in a Book® 2022 release. Adobe Press.

Online Resources

- https://www.creativebloq.com/advice/understand-the-12-principles-of-animation
- https://www.creativebloq.com/features/element-3d-what-it-is-and-how-to-use-it
- https://www.youtube.com/@VideoCopilot
- https://www.youtube.com/@MoveShapes
- https://www.youtube.com/@nijatIbrahimli

Course Outcomes		Knowledge level
CO-1	Will understand and Describe the Elements & Principles Involved in creation of Motion graphics.	K2
CO-2	Will be able to Practice & Create Text and 2d Animation.	K3&K6
CO-3	Will be able to Examine & Generate Compositing Shots	K4
CO-4	Will be able to visually interpret the Effects learnt in their Motion Graphics.	K5
CO-5	Will be able to develop & create 3d Title Animation based on their choice of study	K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L(1)	M(2)	M(2)	L(1)	M(2)	L(1)	S(3)	L(1)	L(1)	M(2)
CO2	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)	M(2)
CO3	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)	M(2)
CO5	S(3)	M(2)	S(3)	L(1)	L(1)	M(2)	L(1)	S(3)	M(2)	M(2)
W.AV	2.6	2	2.2	1.6	1.2	1.8	2	2	1.8	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	S(3)	S(3)	M(2)	S(3)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	S(3)
CO4	M(2)	S(3)	S(3)	M(2)	S(3)
CO5	M(2)	M(2)	S(3)	M(2)	S(3)
W.AV	2	2.6	3	2	3

S–Strong (3), M-Medium (2), L-Low (1)

<table>
<tr><td colspan="6">II-Semester - Core</td></tr>
<tr><td>Core 4</td><td>Course Code
82924</td><td>Motion Graphics - Practical</td><td>P</td><td>Credits: 4</td><td>Hours: 6</td></tr>
<tr><td>Objectives</td><td colspan="5">➢ The primary objective is to communicate information effectively.
➢ Grab the audience's attention and maintain their interest by incorporating dynamic animations, transitions, and graphics into videos or presentations.
➢ Support storytelling by adding visual elements that enhance the narrative and help convey emotions, concepts, or messages more effectively.
➢ Design promotional materials for events, conferences, or exhibitions, including animated logos, event teasers, and informational videos.
➢ Create seamlessly integrate different visual elements, such as actors, props, backgrounds, and special effects, to create a coherent and believable scene. This involves matching color, lighting, and perspective.</td></tr>
<tr><td colspan="6">Students are required to create the following:
1. Create motion graphics to portrait a social problem.
2. Create infographics to communicate statistical information.
3. Create an Educational Video.
4. Create a lower third animation for the given video.
5. Create a 3D title animation.
6. Create a Motion Poster.
7. Composite using 3D elements with live action footage.
8. Extract the character from the given footage using Rotoscope.
9.Remove the chromakey for the given footage and composite with suitable background.
10.Camera track and Composite a 3d Object in live action footage.</td></tr>
<tr><td colspan="6">Reference and Text Books:
1.Wright, S. (2013). Compositing visual effects: Essentials for the aspiring artist. Routledge.
2.Shaw, A. (2015). Design for motion: fundamentals and techniques of motion design. Routledge.
3.Woods, S. (2002). THE ANIMATOR'S SURVIVAL KIT. Film Ireland, (85), 28.
4.Audronis, T. (2014). Lightning Fast Animation in Element 3D. Packt Publishing.</td></tr>
<tr><td>Outcomes</td><td colspan="5">● Conceptualize and Plan: Demonstrate the ability to conceptualize and plan motion graphics projects by understanding client needs, defining project objectives, and developing a creative vision.
● Design Principles: Apply fundamental design principles, including typography, color theory, composition, and visual hierarchy, to create visually appealing and effective motion graphics.
● Software Proficiency: Utilize industry-standard software such as Adobe After Effects, Adobe Premiere Pro, and Adobe Illustrator to create motion graphics, incorporating various visual elements, effects, and transitions.
● Animation Techniques: Employ a range of animation techniques, including keyframing, easing, masking, and particle effects, to bring static graphics to life and convey messages effectively.
● Storytelling: Develop storytelling skills to craft narratives and communicate messages through motion graphics, considering pacing, narrative structure, and audience engagement.
● Audio Integration: Integrate audio elements, such as sound effects and music, seamlessly into motion graphics projects to enhance emotional impact and create a cohesive multimedia experience.
● Motion Graphics for Various Platforms: Adapt motion graphics for different platforms, including web, social media, broadcast, and presentations, considering aspect ratios, resolutions, and delivery formats.</td></tr>
</table>

Online Resources
https://www.creativebloq.com/advice/understand-the-12-principles-of-animation
https://www.creativebloq.com/features/element-3d-what-it-is-and-how-to-use-it
https://www.youtube.com/@VideoCopilot
https://www.youtube.com/@MoveShapes
https://www.youtube.com/@nijatIbrahimli

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2.2	2.2	2	2.2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	S(3)
W.AV	2.4	2.6	2.6	2.2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

II-Semester - Allied					
Allied 3	Course Code 82925	VISUALIZATION FOR PRODUCTION	T	Credits: 3	Hours:3
Objective	1. To Understand motion graphics, as well as the Elements & Principles Involved in their creation 2. To inculcate knowledge about Figure drawing. 3. To educate students about the fundamentals of story development 4. To educate students about Story Board & Animatics and its effectiveness. 5. To acquaint students with technical skills required for their choice of study.				
UNIT-I	Free hand practice - Geometrical & Non-Geometrical Forms; Light and shade; Direction of light and shadow; Still Life - Understanding space; Composition - Scale & proportion; Still life sketching and shading .Depth cues ; Size and scale; Depth of field; Degree of contrast; Light and shade; Color; Perspective; Perspective - Importance of Perspective, Aerial VS Linear perspective, One point perspective, Two point perspective, Three point perspective (worms & birds eye views).				
UNIT-II	Figure drawing basics - Essentials of human figure drawing; Proportion and Gesture/Pose; Stick figure - To understand measurement and pose; Line of action; Balance; Foreshortening; Overlapping; Contour drawing - different poses; Quick sketches - Study from live figure.Portrait Head study - Male Head; Female Head; Eyes; Nose; Ears; Lips; Hand study; Feet study.				
UNIT-III	Elements of Story - Theme & Plot, One line story, Story with a Message, Arch, Anti & Mini Plot; Situation Archetypes - Synopsis & Story - Story in a nutshell, Events in Linear Structure. Screenwriting: 3 Act Structure - Setup, Confrontation and Resolution; Hero's Journey - Different stages of Hero's Journey; Conflict & Cliché - Elements of Screenwriting				
UNIT-IV	StoryBoard & Animatics: Scene, Shots & Thumbnail; Location and Scene, Reference Thumbnail; Fair Storyboard - Neat Sketch with Details of Shot; Movements for Arrow - Character Movement and Camera Movements; Sound for Animatics - Voice, Music, SFX for Animatics; Final Animatics - Visual Edit with Movement and Audio				
UNIT-V	Introduction to Photoshop, Image File Formats and Image Resolution, Tools in Photoshop, Usage of brushes in Photoshop; Thumbnail Paintings for Concept Art. Greyscale Environment Painting, Usage Of Color Correction tools, Selection Tools. Refining the selection in photoshop, Photo Manipulation, Color Matching Techniques ,Blending Modes, Set Extension in Photoshop. Introduction to 3d workspaces in photoshop,,Importing 3d Objects,Applying Material And Textures, Creating Normal Map and Bump, Lighting 3d objects in Photoshop.				

Reference and Text Books:

- Barber, B. (2018). The Complete Book of Drawing: Essential Skills for Every Artist. United Kingdom: Arcturus Publishing.
- Chari, Aditya,(2005). Figure Study Made Easy, Grace Prakashan Publisher.
- Simon, M. (2012). Storyboards: motion in art. Routledge.

Online Resources

- https://mattepaint.com/blog/matte-painting-basics-matching-perspectives/
- https://www.youtube.com/watch?v=3pCT7bC8jHE

Course Outcomes		Knowledge level
CO-1	Will relate and understand the techniques and concepts involved in shading and Perspective.	K2
CO-2	Will be able to construct & draw human figures in their different poses.	K3
CO-3	Will understand the fundamentals of the story and be able to write a story.	K2&K3
CO-4	Will be able to visually interpret the story through storyboard.	K5
CO-5	Will be able to develop creative environments based on their choice of study.	K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)
CO5	S(3)	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)
W.AV	2.4	2.6	2.2	2	2	2	2.2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	M(2)
CO3	M(2)	M(2)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	S(3)
W.AV	2.4	2.2	2.8	2.2	2.2

S–Strong (3), M-Medium (2), L-Low (1)

Allied 4	Course Code 82926	Visualization for Production - Practical	P	Credits: 3	Hours: 5

Objectives

1. Visualize the entire narrative or sequence of a project, allowing the creators to see how the story unfolds, shot by shot or scene by scene.
2. Ensure that the visual representation aligns with the script
3. Develop visual storytelling of a film or project by creating environments that enhance the narrative, mood, or atmosphere.
4. create realistic and immersive environments that may be challenging or costly to film or build practically.
5. Create detailed and imaginative designs that align with the project's creative vision.

Students are required to create the following:

1. Draw a one point perspective environment of the living room to demonstrate your drawing skills.
2. Create a matte painting to demonstrate your set extension skills.
3. Create print collage to demonstrate your set extension and compositing skills.
4. Create a matte painting using digital collage and photography to create composites.
5. Create a hand painted concept art to demonstrate your art and storytelling skills.
6. Create a digital concept art to demonstrate your set extension skills.
7. Create a Storyboard for a given story.
8. Create an environmental set extension to demonstrate your visualization skills.
9. Decorate the given empty space using digital collage to demonstrate your technical skills.
10. Create an interior environment using two point perspectives to demonstrate your visualization skills.

Outcomes

- Creative Thinking: Storyboarding encourages students to think creatively. Whether they are storyboarding for a film, a presentation, or a project, they must come up with imaginative and innovative ideas to convey their message effectively.
- Problem Solving: Creating a storyboard often involves solving logistical and narrative problems. Learners must figure out how to visually represent their ideas and how to structure their story or project in a coherent and engaging manner.
- Communication Skills: Storyboarding helps students develop their communication skills. They need to convey their ideas visually, which requires them to think about how images and text work together to convey a message effectively.
- Planning and Organization: Storyboards require careful planning and organization. Students must decide what to include in each frame or section, ensuring that the story or project flows logically and cohesively.
- Time Management: When working on a time-bound project, like a video production or presentation, learners must manage their time effectively to complete their storyboard and subsequent tasks on schedule.
- Conceptualize and Design: Generate creative and visually compelling concepts for matte paintings, demonstrating a deep understanding of storytelling and composition in digital environments.
- Digital Artistry: Apply advanced digital painting techniques to create realistic and seamless matte paintings, incorporating elements such as lighting, perspective, and atmospheric effects.

Reference and Text Books:

1. Barber, B. (2018). The Complete Book of Drawing: Essential Skills for Every Artist. United Kingdom: Arcturus Publishing.
2. Chari, Aditya,(2005). Figure Study Made Easy, Grace Prakashan Publisher.
3. Simon, M. (2012). Storyboards: motion in art. Routledge.

Online Resources

- https://mattepaint.com/blog/matte-painting-basics-matching-perspectives/
- https://www.youtube.com/watch?v=3pCT7bC8jHE

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.2	2.2	2.2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

III-Semester - Core					
Core 5	Course Code 82933	VFX Production I (Compositing)	T	Credits: 3	Hours: 3

Objective	1. To Educate students about digital compositing, 2. To isolate specific objects, characters, or elements within a live-action scene. 3. To interact CGI elements/ Different Images and Image Sequence into live-action footage and ensure that they match the camera's motion and perspective. 4. To create unique and imaginative visuals. 5. To acquaint students with technical skills required for their choice of study.
UNIT-I	Introduction to compositing - Introducing node based compositing - Advantages of Nuke-Nuke interface-Menu Tab and its uses –How to navigate using Viewer - Properties Bin - Tools - Merging multiple layers/Images - Addmix – Node graph as basic building blocks of any compositing
UNIT-II	Introduction to RotoScopy - Single frame Roto - Usage of Subtract Roto - Purpose of Segmenting Roto for a Character-How to Segment a Character Roto- usage of Feather in Roto - Open spline for hair Roto..
UNIT-III	Introduction to 2d Tracking - One Point Track using position- Two point track using position and rotation - Four point Track using perspective -Stabilizing a footage with the help of tracker -Track rigid objects and objects using- Planar Tracker Introducing 3D camera tracking Purpose of 3D camera
UNIT-IV	Introduction to Keying - Purpose of blue/green screen - How to use keyer - How to use Primatte – How to use Keylight - How to use IBK Color and Gizmo - Color Correction - Grade Node - Hue Correct & Hue Shift - Log to Linear.- Creating Matte Painting for Compositing.
UNIT-V	introduction to prep & paint , clean platte , camera projection , clean up , wire removel , object removel scene node in 3D environment - How to import 3D objects-3D lighting in Nuke-Applying texture in Nuke-3D to 2D render conversion using scanline render

Reference and Text Books:

6. Gress, J. (2014). [digital] Visual Effects and Compositing. New Riders.
7. Couper, M. P., Tourangeau, R., & Kenyon, K. (2004). Picture this! Exploring visual effects in web surveys. Public opinion quarterly, 68(2), 255-266.
8. Jackman, J. (2007). Blue Screen Compositing: A Practical Guide for Video & Moviemaking. Taylor & Francis.
9. Lanier, L. (2012). Digital compositing with Nuke. Taylor & Francis.
10. Bratt, B. (2012). Rotoscoping. Taylor & Francis.

Online Resources

- https://learn.foundry.com/nuke
- https://www.youtube.com/@HugosDesk
- https://www.youtube.com/watch?v=zD6ZGhfSFdI&t=1132s
- https://www.nukecompositingtutorials.com/?cat=64

Course Outcomes		Knowledge level
CO-1	Will relate and understand the techniques and concepts involved in Compositng	K1
CO-2	Will be able to extract Alpha channel using Rotoscopy Technique..	K6&K4
CO-3	Will understand the importance of tracking which makes the vfx shot more realistic and visually apeling.	K3
CO-4	Will be able to visually create a Visual Effects Shot.	K3&K6
CO-5	Will be able to Remove wire and objects which are unnecessary from a live action Footage	K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)
CO5	S(3)	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)
W.AV	2.4	2.6	2.2	2	2	2	2.2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	M(2)
CO3	M(2)	M(2)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	S(3)
W.AV	2.4	2.2	2.8	2.2	2.2

S–Strong (3), M-Medium (2), L-Low (1)

III-Semester - Core					
Core 6	Course Code 82934	VFX Production I (Compositing) - Practical	P	Credits: 3	Hours: 5

Objectives	1. To acquire knowledge in Rotoscopy which plays a major role in compositing. 2. To create a final image or shot that appears realistic and seamless using Keying techniques.. 3. To ensures that the audience's focus remains on the main subjects and actions in the scene without distractions. 4. To integrating CGI elements into live-action footage and ensuring that they move realistically with the scene. 5. To enhance storytelling by providing visually stunning backdrops that support the narrative and create the desired atmosphere or mood.

Students are required to create the following:

1. Extract the object from the given footage using Rotoscopy Techniques
2. Extract the character from the given footage using Rotoscopy Techniques
3. Remove the bluescreen from the given footage and composite with suitable background.
4. Remove the green screen from the given footage and composite with suitable background.
5. Wire removal Using Sequence Paint
6.Rig Removal Using clean plate and tracking Technique.
7.Track the Monitor Screen and replace with the given footage
8.Remove the markers from the footage.
9.Create a matte painting and composite with the given footage.
10. Create set extension and composite with the given footage.

Outcomes	● Seamless Integration: The primary objective of set extension is to seamlessly extend the physical set or location to create a larger or more elaborate environment. This extension should blend seamlessly with the practical set, so the audience cannot discern the boundary between the real and digital elements. ● Visual Enhancement: Set extension enhances the visual quality and scale of a scene, allowing filmmakers to achieve grander and more visually striking compositions. ● Flexibility: Set extension provides filmmakers with the flexibility to shoot in real-world locations while digitally extending the set to meet the specific requirements of the scene or story. ● Cost Efficiency: Instead of constructing full-scale sets for every scene, set extension can save costs by digitally extending existing sets, making them appear larger or more elaborate than they actually are. ● Time Efficiency: Set extension can save time in production by reducing the need to build extensive physical sets. Filmmakers can focus on shooting essential elements while digitally extending the set later in post-production. ● Creative Freedom: Set extension allows for creative freedom, enabling filmmakers to design and depict environments that would be challenging, expensive, or impractical to build in reality. ● Enhanced Realism: By extending practical sets with digital elements, filmmakers can create environments that look real but offer more control over lighting, weather, and other factors.

Reference and Text Books:

1. Gress, J. (2014). *[digital] Visual Effects and Compositing*. New Riders.
2. Couper, M. P., Tourangeau, R., & Kenyon, K. (2004). Picture this! Exploring visual effects in web surveys. *Public opinion quarterly*, *68*(2), 255-266.
3. Jackman, J. (2007). *Bluescreen Compositing: A Practical Guide for Video & Moviemaking*. Taylor & Francis.
4. Lanier, L. (2012). *Digital compositing with Nuke*. Taylor & Francis.
5. Mattingly, D. B. (2011). The digital matte painting handbook. John Wiley & Sons.

Online Resources

- https://learn.foundry.com/nuke
- https://www.youtube.com/@HugosDesk
- https://www.youtube.com/watch?v=zD6ZGhfSFdI&t=1132s
- https://www.nukecompositingtutorials.com/?cat=64

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.2	2.2	2.2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

III-Semester - Core					
Core 7	Course Code 82935	Fundamental of Videography & Audiography	T	Credits: 3	Hours: 3
Objective	➢ Introduce videography, its importance and applications in various industries. covering types of camera, exposure, and understanding camera operations. ➢ The study of framing techniques and the importance of lighting setups that effects the mood and atmosphere. ➢ Introduce audeography, its importance and applications in various industries. understanding properties of sound. ➢ Introduce various recording devices and techniques. ➢ Understanding the importance of sound design in storytelling.				
UNIT-I	Introduction and History of Videography -Importance and applications in various industries - Overview of different types of videography (cinematic, documentary, corporate, etc.)-Types of cameras - Camera components - Understanding exposure				
UNIT-II	Rule of thirds - Framing techniques - Understanding perspective and depth - Importance of composition in storytelling - Types of lighting - Lighting setups and their effects on mood and atmosphere - Controlling exposure with lighting - Importance of shadows and highlights				
UNIT-III	Introduction and History of Audiography - Audio recording technologies - Audiography in different industries - Basics of sound waves and frequencies - Properties of sound - Human hearing and perception				
UNIT-IV	Types of microphones - Recording devices - Location sound recording techniques - Dealing with common recording challenges- Audio Editing techniques -Mixing basics				
UNIT-V	Foley artistry and techniques for creating realistic sounds -Importance of sound design in storytelling and creating ambiance - Mastering basics - Quality control and final checks - Exporting and file formats				

Reference and Text Books:

1. Ascher, S., & Pincus, E. (2007). *The filmmaker's handbook: A comprehensive guide for the digital age*. Penguin.
2. Mascelli, J. V. (1965). *The five C's of cinematography* (Vol. 1). Hollywood: Grafic Publications.
3. Walter, M. (2001). In the blink of an eye: a perspective on film editing. *Los Angeles, California: Silman-James Press. Literaturverzeichnis X*.
4. Davis, G., & Davis, G. D. (1989). *The sound reinforcement handbook*. Hal Leonard Corporation.
5. Owsinski, B. (2006). *The mixing engineer's handbook*. Boston: Thomson Course Technology.

Online Resources

https://www.youtube.com/@filmriot

https://www.soundonsound.com/

https://theproaudiofiles.com/

Course Outcomes		Knowledge level
CO-1	Attain a foundational understanding of Videography and types of cameras and its components.	K1
CO-2	Grasp the framing techniques and Importance of composition in storytelling	K3
CO-3	Acquire a foundational understanding of Audiography and its importance and applications in various industries.	K2&K4
CO-4	It allows us to gain insight into how audio editing techniques and mixing works.	K5
CO-5	Grasp an understanding about the importance of sound design in storytelling.	K5

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2)	M(2)	M(2)
CO5	S(3)	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)
W.AV	2.4	2.6	2.2	2	2	2	2.2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	M(2)
CO3	M(2)	M(2)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	S(3)
W.AV	2.4	2.2	2.8	2.2	2.2

S–Strong (3), M-Medium (2), L-Low (1)

III-Semester -Allied					
Allied 5	Course code: 82936	VFX Production II (3D for VFX)	T	Credits: 3	Hours: 3
Course Objectives	1. To develop proficiency in productive modeling using Maya, encompassing different stages, techniques, and applications. 2. Understand texture creation, unwrapping, and shader development for realistic visual effects. 3. Master the fundamentals of lighting and color, both natural and artificial, and their practical applications. 4. To understand the anatomy for animation and to rig the models with perfect anatomy and to create industry level animations 5. Master digital lighting and rendering techniques using Maya, covering various aspects of lighting and rendering.				
Unit - I	Maya Interface – 3D Modeling - Curve tools - CV curve tool, EP curve tool Surface - Loft, Plannar, Revolve, Birail,Extrude - NURBS Primitives, Polygons Primitives, NURBS to Polygons conversation, Polygons toNURBS - Polygon Primitives - Mesh tools - Boolean, Fill hole, Create Polygon, Insert Edge loop,multi-cut - Porject Curve on Mesh, Split Mesh with projected curve - Bridge, Bevel, Poly extrude,Merge - Weld, Target weld, Soften edge, harden edge - Smooth, Reduce, Mirror Cut, Mirror Geometry - Cleanup, Reducing the topology with different tools.				
Unit - II	Basic Materials - Lambert, Blin, Phong, Phong E, Anisotropic, Arnold Materials - Understanding -Diffuse - Specular - Transmission - Subsurface - Coat - Emission, 3D Texturing - Introduction to UV mapping and projections, UV Mapping - Cylindrical - Planar - Spherical - Automatic, Contour Stretch UV Editor tools - Cut tools - Sew tools Transformation tools on UV- Projected image -display types, Advance cut tools using UV, Edges, Face, Vertex, Shell UV Unfold - Cut UV edges,3D UV grab tool-Exporting and importing UV to Photoshop or any Image editing software, bump map - normal map - displacement/height map.				
Unit - III	3d Lighting-Introduction to Maya default lighting -Product single lighting - Single point lighting -Spot light or directional light Environment lighting - Directional lighting spot lighting using photons and cluster lighting - Indoor lighting using different light sources with depth map shadows, Rasterize - Raytrace - Raycasting shadows Studio lighting - 3 Point lighting advance Arnold lighting - Indirect lighting - HDRI lighting environment - skydome physical sky.				
Unit IV	Rigging & Animation-Introduction types of rigging - Creating bone joints - IK and FK handles - Skinning, Constrain with mesh, Paint skin weightage, interactive bind skin - Deform - Nonlinear - Bend, Flare, Sine, Squash, Twist, Wave, Cluster, Time slider, Animation using Keyframe, Non Linear handles.				
Unit-V	Rendering - Introduction to Render Engines - Render Layers - Rendering options - - Production settings and quality, Raytrace Depth, Sampling, Adaptive Sampling, Environment, Motion Blur, Creating AOV's, Render passes - Ambient Occlusion - diffuse - specular & Multi Render passes for composting.				

Reference and Text Books:

1. Lanier, L. (2015). *Advanced Maya texturing and lighting*. John Wiley & Sons.
2. Clark, K. (2002). *Inspired 3D character animation*. Premier Press.
3. Russo, M. (2006). *Polygonal modeling: basic and advanced techniques*. Jones & Bartlett Learning.
4. Woods, S. (2002). THE ANIMATOR'S SURVIVAL KIT. *Film Ireland*, (85), 28.
5. Watkins, A. (2012). Getting Started in 3D with Maya: Create a Project from Start to Finish—Model, Texture, Rig, Animate, and Render in Maya. CRC Press.

Online Resources

- https://help.autodesk.com/view/MAYAUL/2023/ENU/
- https://www.youtube.com/@Autodesk_Maya
- https://www.sdcpublications.com/Textbooks/Autodesk-Maya/291/

Course Outcome

CO-1	Attain proficiency in productive modeling techniques using Maya for diverse applications.	K1
CO-2	Develop skills in creating textures, optimizing UV layouts, and shader development.	K2&K3
CO-3	Develop a solid understanding of lighting and color principles and their practical implications.	K5&K6
CO-4	Develop a solid understanding of Rigging and Animation for Visual Effects.	K6
CO-5	Master digital lighting and rendering techniques using Maya, covering various aspects of lighting and rendering.	K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	S(3)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	S(3)	M(2)	S(3)
CO5	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2.2	2.2	2	2.2	2.2	2.4	3

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	S(3)
W.AV	2.4	2.6	2.6	2.2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

<table>
<tr><td colspan="6">III-Semester - Allied</td></tr>
<tr><td>Allied 6</td><td>Course Code
82937</td><td>VFX Production II (3D for VFX) - Practical</td><td>P</td><td>Credits: 2</td><td>Hours: 4</td></tr>
<tr><td>Objectives</td><td colspan="5">1. To develop proficiency in productive modeling using Maya, encompassing different stages, techniques, and applications.
2. Understand texture creation, unwrapping, and shader development for realistic visual effects.
3. To understand the anatomy for animation and to rig the models with perfect anatomy and to create industry level animations
4. Master the fundamentals of lighting and color, both natural and artificial, and their practical applications.
5. Master digital lighting and rendering techniques using Maya, covering various aspects of lighting and rendering.</td></tr>
<tr><td colspan="6">Students are required to create the following:

1. Create a prop model with lights and turn table.
2. Create a Vehicle model with lights and turn table.
3. Create a Environment model
4. Create a interior set model
5. Create a portrait human head
6. Create a realistic human character
7. Light and render the given scene file.
8. Light the given model with appropriate maps, lights and render passes.
9. Rig and Animate a vehicle.
10. Rig and Animate a character walk cycle.</td></tr>
<tr><td>Outcomes</td><td colspan="5">1. Attain proficiency in productive modeling techniques using Maya for diverse applications.
2. Develop skills in creating textures, optimizing UV layouts, and shader development.
3. understand the anatomy for animation and to rig the models with perfect anatomy and to create industry level output
4. Develop a solid understanding of lighting and color principles and their practical implications.
5. Master digital lighting and rendering techniques using Maya, covering various aspects of lighting and rendering.</td></tr>
<tr><td colspan="6">Reference and Text Books:
1. Lanier, L. (2015). Advanced Maya texturing and lighting. John Wiley & Sons.
2. Clark, K. (2002). Inspired 3D character animation. Premier Press.
3. Russo, M. (2006). Polygonal modeling: basic and advanced techniques. Jones & Bartlett Learning.
4. Woods, S. (2002). THE ANIMATOR'S SURVIVAL KIT. Film Ireland, (85), 28.
5. Watkins, A. (2012). Getting Started in 3D with Maya: Create a Project from Start to Finish—Model, Texture, Rig, Animate, and Render in Maya. CRC Press</td></tr>
<tr><td colspan="6">Online Resources

https://help.autodesk.com/view/MAYAUL/2023/ENU/
https://www.youtube.com/@Autodesk_Maya
https://www.sdcpublications.com/Textbooks/Autodesk-Maya/291/</td></tr>
</table>

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.2	2.2	2.2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

IV-Semester -Core					
Core 8	Course code: 82943	Video Editing	T	Credits: 4	Hours: 4
Course Objectives	1. To develop proficiency in Image and Video file formats, codecs, and resolutions. 2. Master the fundamentals of working with different types of media and advanced editing tools 3. To broaden critical and contextual awareness of project organization and file management. 4. Master different video editing styles and techniques. 5. To develop proficiency in creating a professional demo reel and portfolio				
Unit - I	Overview of Image and Video file formats, codecs, and resolutions - Understanding video editing software interfaces - Exploring essential tools and functionalities -Basic editing techniques - Cuts & Transitions for Video Editing				
Unit - II	Working with different types of media (footage, audio, graphics, etc.)-Advanced editing tools (key framing, color correction, audio manipulation)-Green screen (chroma key) techniques and compositing. Video Effects -Multicam editing and synchronization.				
Unit - III	Project organization and file management best practices - Troubleshooting common issues and errors - Text Animation -Collaboration and teamwork in editing projects. Adding Audio tracks- Audio Effects.				
Unit IV	Documentary editing: storytelling through real-life footage -Music video editing: synchronization with music and visual storytelling - Commercial and promotional video editing: understanding client needs and branding-Narrative film editing: continuity, emotion, and pacing -Exploring other genres (e.g., vlogging, gaming content, educational videos).				
Unit-V	Creating a professional demo reel and portfolio -Understanding different career paths in video editing (freelancing, post-production houses, etc.) - Networking and professional communication skills-Industry standards, trends, and emerging technologies - Legal and ethical considerations in video editing (copyright, fair use, etc.).				
Reference and Text Books: **1.** Hekes, B. (2002). EDITING AND POST-PRODUCTION SCREENCRAFT. Film Ireland, (85), 28. **2.** Chandler, G. (2004). Cut by cut: editing your film or video. **3.** Jackson, W. (2016). Digital video editing fundamentals. Apress. **4.** Dmytryk, E., Lund, A., & Hurbis-Cherrier, M. (2018). On film editing: An introduction to the art of film construction. Routledge. **5.** Van Hurkman, A. (2014). Color correction handbook: professional techniques for video and cinema. Pearson Education.					
Online Resources https://www.youtube.com/@ZachKing https://www.youtube.com/@filmriot https://www.youtube.com/@FilmEditingPro					

Course Outcome

CO-1	Understand Image and Video file formats, codecs, and resolutions.	K1 & K4
CO-2	It allows us to master the fundamentals of working with different types of media and advanced editing tools	K3
CO-3	Understand project organization, file management and to troubleshoot common issues and errors	K4
CO-4	Allows students to master different video editing styles and techniques.	K5
CO-5	Allows students to develop proficiency in creating a professional demo reel and portfolio	K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	S(3)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	S(3)	M(2)	S(3)
CO5	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2.2	2.2	2	2.2	2.2	2.4	3

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	S(3)
W.AV	2.4	2.6	2.6	2.2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

IV-Semester -Core

Core 9	Course code: 82944	VFX Production III (FX for VFX)	T	Credits: 4	Hours: 4
Course Objectives	1. Attain proficiency in Interface & productive modeling techniques using Houdini. 2. Develop proficiency in Houdini's volumetric techniques, covering SDF volumes, fog, smoke, and fire simulations using Pyrosolver, 3. Gain proficiency in Houdini's POP network, exploring particle forces, custom forces, replication, advection, rendering, 4. Gain proficiency in Houdini's Rigid Body stimulation. 5. Master the fundamentals of Flip Fluids in Houdini, including basic simulations, Flip Tank setup, force integration, viscosity control, meshing, rendering, and creating realistic ocean effects.				
Unit - I	Introduction and Interface of Houdini - Understanding Procedural workflow - Grouping- Attributes - Modeling Tools, Programming Basics, VEX Programming, Procedural Modeling, VOP, Material Network, Lighting, Camera, and Rendering.				
Unit - II	Volume And Voxels - SDF Volume - Clouds With Fog Volume - Smoke Simulation - Exploring Pyrosolver - Rendering Smoke - Creating Fire Simulation - Adding Sparks In Fire - Pyro Burst Source - Adding Smoke Trails - Rendering Explosion				
Unit - III	Intro To POP Network - Particles Forces - POP Axis And Curve Force - Custom Particles Forces - POP Replicate - Particles Advection - Rendering Particles - Setting Up Growth Attribute - Particle Simulation - Render Setup - Setting Up Grains - Activating Grains - Render Grains - Grains Soft Bodies				
Unit IV	Intro To Rigid Body - Setting Up Basic RBD Sim - Fracturing Geometry - RBD Cluster - 4. Boolean Fracture - RBD Activation - RBD Constraints - Vellum Basics -Vellum Soft Bodies - Vellum Pressure Constraint - Vellum Shape Match - Vellum Hair -Vellum Cloth Tearing - Vellum Brush - Vellum Grains				
Unit-V	Intro to Flip Fluids - Basic Flip Simulation - Flip Tank - Adding forces to the Fluids - Flip Viscosity - Meshing Fluid - Rendering Flip Fluids - Creating Ocean				

Reference and Text Books:

1. Xu, K., & Campeanuy, D. (2014, August). Houdini engine: Evolution towards a procedural pipeline. In *Proceedings of the Fourth Symposium on Digital Production* (pp. 13-18).
2. Cunningham, W., Bowmar, P., Iversen, J., & Johnson, D. (2006). The magic of Houdini. *(No Title)*.
3. Saario, V. (2019). Visual Effects in SideFX Houdini.
4. Joiner, J. (2023). A Visual Breakdown of Astronomical Phenomena Using SideFX's Houdini.
5. Elkins, E. B. (2020). Simulating destruction effects in SideFX Houdini.

Online Resources

https://www.sidefx.com/learn/

https://www.appliedhoudini.com/

https://entagma.com/page/3/

Course Outcome

CO-1	Students should be familiar with the Houdini interface, navigation, and basic functionality. This includes understanding the node-based workflow, parameter panes, and viewport controls	K1
CO-2	Students should gain proficiency in creating and manipulating particle systems, as well as understanding dynamics simulations. This could involve creating realistic fluid simulations, smoke and fire effects, or other dynamic simulations using Houdini's tools	K2
CO-3	Students should be able to create complex 3D models using procedural techniques in Houdini. This could include generating landscapes, architecture, or other assets procedurally, allowing for easy iteration and variation	K2
CO-4	Integration of Houdini into a broader VFX pipeline. Students should be able to export and import assets between Houdini and other software, as well as understanding the basics of compositing rendered elements in post-production.	K6&K4
CO-5	Encouraging creativity and problem-solving skills. Students should be able to apply their knowledge to solve unique challenges in 3D animation and VFX. This could involve creating custom effects, optimizing scenes, or tackling specific creative projects.	K6&K4

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	S(3)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	S(3)	M(2)	S(3)
CO5	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2.2	2.2	2	2.2	2.2	2.4	3

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	S(3)
W.AV	2.4	2.6	2.6	2.2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

IV-Semester - Core					
Core 10	Course Code82945	Video editing & FX for VFX - Practical	p	Credits: 3	Hours: 5

Objectives	1. Produce a documentary film showcasing the cultural, culinary, and architectural aspects of a chosen city or town 2. Edit a compelling promotional video for a food item, focusing on showcasing its unique features and appeal 3. Shoot and edit a captivating travel video highlighting the beauty and experiences of a chosen destination. 4. Develop skills in visual effects by creating realistic simulations. Explore ocean and atmospheric effects like rain, snowfall, fog, as well as fire and smoke simulations 5. Master the art of hair and fur simulation for character animation. Utilize advanced software features to create realistic and dynamic hair and fur movements

Students are required to create the following:

1. Create a documentary film of a city or Town portraying cultural,food and Architecture.
2. Edit a promotional video for a food
3. Shoot and Edit a Travel video.
4. Film and Edit an Event like Marriage, college culturals,Sports Event.
5. Create a ocean in FX
6. Create a atmospheric effects like Rain,Snowfall and Fog
7. Create a fire stimulation, Smoke Stimulation
8. Create a building destruction effect for a building
9. Create a hair and fur stimulation for a character.
10. Create a cloth Animation for a character.

Outcomes	1. A portfolio showcasing the Editing skills and presentation skill. 2. Demonstrating the Video Editing Skills for an Event. 3. A Portfolio work showcasing the skills in Particle Effects stimulation. 4. A Portfolio work showcasing the skills in Character Stimulation. 5. Demonstrating the programming Skills used to create FX Stimulation

Reference and Text Books:

1. Saario, V. (2019). Visual Effects in SideFX Houdini.
2. Joiner, J. (2023). A Visual Breakdown of Astronomical Phenomena Using SideFX's Houdini.
3. Elkins, E. B. (2020). Simulating destruction effects in SideFX Houdini.
4. Dmytryk, E., Lund, A., & Hurbis-Cherrier, M. (2018). On film editing: An introduction to the art of film construction. Routledge.
5. Van Hurkman, A. (2014). Color correction handbook: professional techniques for video and cinema. Pearson Education.

Online Resources

https://www.sidefx.com/learn/

https://www.appliedhoudini.com/

https://entagma.com/page/3/

https://www.youtube.com/@ZachKing

https://www.youtube.com/@filmriot

https://www.youtube.com/@FilmEditingPro

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.2	2.2	2.2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

<table>
<tr><td colspan="6">IV-Semester - Allied</td></tr>
<tr><td>Allied 7</td><td colspan="2">Course code: 82946</td><td>VFX Production IV (Matchmove/ Rotomation & CG Compositing)</td><td>T</td><td>Credits: 3</td><td>Hours: 3</td></tr>
<tr><td>Course Objectives</td><td colspan="6">1. Introduce matchmoving fundamentals, covering 3D Equalizer, UI navigation, menu tabs, viewer tools, properties bin, track modes, and facilitating integration with Maya and other 3D applications
2. Develop proficiency in object tracking for VFX, mastering techniques for accurately integrating computer-generated elements with live-action footage.
3. Gain proficiency in rotomation for VFX, understanding its purpose, learn posing techniques, keyframe animation, geometry tracking, cleanup, and export processes
4. Explore the essentials of CG compositing, covering lighting, exposure, shadows, reflections, Fresnel effect, multi-pass EXR with AOVs, channel manipulation, image reconstruction, CG grading, and the creation of realistic shadows and reflections
5. Explore advanced rendering techniques in Houdini, encompassing Z Depth, Normals, ID Passes, CG imperfections, Atmospheric Fog, Projection Techniques, and efficient rendering workflows.</td></tr>
<tr><td>Unit - I</td><td colspan="6">Introduction to match moving - Introducing to 3d equalizer - 3d Equaliser ui interface- Menu Tab and its uses –How to navigate using Viewer - Properties Bin - Tools - track modes - buer– bridge to maya or other Software applications.</td></tr>
<tr><td>Unit - II</td><td colspan="6">Introduction to manual tracking- data points - error graph - image editing details for tracking - create mesh - correction - test objec tracker assign camera- object tracking.</td></tr>
<tr><td>Unit - III</td><td colspan="6">Introduction to rotomation -Purpose of rotomation -How to pose -How to set keys – animate -How to use geomentry track - clean up- Export</td></tr>
<tr><td>Unit IV</td><td colspan="6">Introduction to CG Compositing - Lighting - Exposure - Shadows - Reflections, Fresnel effect - Multi-Pass EXR, and AOVs - Shuffling channels, reconstructing the image - Grading our CG - Creating a shadow and reflection</td></tr>
<tr><td>Unit-V</td><td colspan="6">Z Depth - Normals - ID Passes - Creating CG Imperfections - Atmospheric Fog - Projection Techniques - Render</td></tr>
<tr><td colspan="7">Reference and Text Books:
● Dobbert, T. (2006). Matchmoving: the invisible art of camera tracking. John Wiley & Sons.
● Hornung, E. (2013). The Art and Technique of Matchmoving: Solutions for the VFX Artist. Taylor & Francis.
● Brinkmann, R. (2008). The art and science of digital compositing: Techniques for visual effects, animation and motion graphics. Morgan Kaufmann.
● Lanier, L. (2012). Digital compositing with Nuke. Taylor & Francis.</td></tr>
<tr><td colspan="7">Online Resources
https://www.youtube.com/@VFXTutors
https://mountcg.com/what-is-matchmoving-and-what-does-a-matchmove-artist-do/
https://www.youtube.com/@yogeshnagamwad9188
https://www.cgspectrum.com/blog/topic/compositing
https://www.youtube.com/@CompositingAcademy</td></tr>
</table>

Course Outcome

CO-1	Attain proficiency in match moving with a focus on 3D Equalizer, covering its interface, menu tabs, viewer navigation, properties bin, track modes, buffer usage, and seamless integration with Maya and other software applications	K1

CO-2	Attain proficiency in manual tracking, understanding data points, error graphs, image editing for tracking accuracy, mesh creation, correction methods, and successfully applying object tracking with camera assignment in other software applications.	K2
CO-3	Gain proficiency in rotomation by understanding its purpose, mastering pose creation and key framing, utilizing geometry tracks for animation, performing cleanup, and exporting the final result	K3&K5
CO-4	Acquire comprehensive skills in CG compositing, covering lighting, exposure, shadows, reflections, Fresnel effects, multi-pass EXR workflows, AOVs, channel manipulation, image reconstruction, grading, and the creation of realistic shadows and reflections."	K4
CO-5	Attain expertise in Houdini rendering by achieving outcomes such as mastering Z Depth, Normals, ID Passes, creating CG imperfections, implementing Atmospheric Fog, employing Projection Techniques, and optimizing the overall rendering process	K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	S(3)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	S(3)	M(2)	S(3)
CO5	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2.2	2.2	2	2.2	2.2	2.4	3

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	S(3)
W.AV	2.4	2.6	2.6	2.2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

IV-Semester - Allied

Allied 8	Course Code 82947	VFX Production IV (Matchmove /Rotomation &CG Compositing) - Practical	P	Credits: 2	Hours: 4

Objectives	1. Realistic integration ensures that viewers perceive the CG elements as natural parts of the scene, enhancing the overall believability of the visual effects. 2. Accurate alignment is crucial for maintaining consistency between the CG and live-action elements, preventing visual discrepancies that could distract the audience. 3. Smooth motion and timing ensure that the CG elements integrate seamlessly, preventing jarring or unnatural movements that could detract from the overall quality of the visual effects. 4. Realistic lighting and shadows enhance the integration of CG elements, making them appear as if they exist within the same environment as the live-action elements. 5. Ultimately, the success of match move and rotomation in VFX is measured by their ability to support the storytelling goals of the project. The seamless integration of CG elements allows filmmakers to convey their narrative vision without distraction or disruption.

Students are required to create the following:

1. Basic Camera Tracking: Track the camera movement in a simple live-action shot, ensuring accurate and stable tracking points.
2. Object Tracking: Track the movement of a specific object within a scene, allowing for the integration of a 3D element.
3. Camera Solve for 3D Scene: Perform a camera solve for a more complex scene, ensuring the 3D environment matches the live-action footage.
4. Refining Tracks: Refine and optimize tracking points for better accuracy and reliability in challenging shots.
5. Adding 3D Objects to Tracked Scene: Integrate a 3D object into a tracked live-action scene, adjusting its position and scale to match the environment.
6. Basic Rotomation: Rotomate a simple 3D object to match the movement of a live-action element, such as a person walking.
7. Object Interaction: Rotomate a 3D object to interact with a live-action object, like a virtual hand picking up a real object.
8. Character Integration: Rotomate a 3D character into a live-action scene, ensuring proper alignment with the environment and other elements.
9. Lip Sync Rotomation: Rotomate the movement of a character's mouth to match a provided audio track for lip sync.
10. Camera Shake Integration: Rotomate 3D elements to match the camera shake or jitter in a live-action shot for added realism

Outcomes	1. The 3D elements seamlessly blend with the live-action footage, creating a visually convincing result. 2. The 3D elements precisely align with the movements and perspective changes of the live-action camera or objects. 3. The motion of the CG elements matches the timing and fluidity of the live-action movements, creating a smooth and cohesive visual experience. 4. The CG elements exhibit realistic lighting and cast shadows consistent with the lighting conditions of the live-action scene. 5. The matchmove and rotomation contribute to the effective communication of the narrative, enhancing the storytelling aspect of the visual effects.

Reference and Text Books:

Dobbert, T. (2006). *Matchmoving: the invisible art of camera tracking*. John Wiley & Sons.
Hornung, E. (2013). *The Art and Technique of Matchmoving: Solutions for the VFX Artist*. Taylor & Francis.

Online Resources
https://openvisualfx.com/2019/10/04/matchmoving-by-hand/
https://www.hollywoodcamerawork.com/tracking-plates.html

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.2	2.6	2.8	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

V-Semester- Core					
Core 11	Course Code 82951	Business of Media	T	Credits: 4	Hours:5
Objective	**1.** Compare and contrast private sector firms, cooperatives, franchises, and not-for-profit businesses **2.** Explore organizational structures, their significance, key terms, various approaches, and their pros and cons. **3.** Examine stakeholders, their influence, types (internal and external), and characteristics, including owners, managers, employees, customers, suppliers, community, and government. **4.** Introduction to Business Studies, covering business objectives, strategy, marketing, market analysis, human resources, production/operations management, accounting/finance, external influences, market structures, and economics **5.** Importance of Communication, Business Structure, Entrepreneurship Theories, and Social Responsibility.				
UNIT-I	Types of Business Organisation – Private Sector and Public Sector – Firms in the Private sector – Key Differences – Co-operatives – Franchises – Not for Profit Businesses.				
UNIT-II	Organisational Structures – Importance of Structure – Key Terms – Ways to Structure a Business – Pros and Cons of Different Structures – Functional Structure - Organisation by Product/Activity – Organisation by Area – By Customer – By Process.				
UNIT-III	Stakeholders – Pressures on Business – Types of Stakeholder – Internal and External Stakeholders – Characteristics of Stakeholders - Owners and Shareholders – Managers – Employees or Staff – Customers – Suppliers – Comm UNITy – Government.				
UNIT-IV	Introduction to Business Studies – Business Objectives and Strategy – Marketing – Market Analysis – Marketing Strategy – Market Research – Marketing Mix – Human Resources – Production/Operations Management – Accounting and Finance – External Influences – Market Structures – Macro and Micro Economics.				
UNIT-V	Business Communication – Importance of Communication – Forms of Business Structure – Channels of Communication.				

Reference and Text Books:

1. Alexander, A., Owers, J. E., Carveth, R., Hollifield, C. A., & Greco, A. N. (Eds.). (2003). *Media economics: Theory and practice*. Routledge.
2. Doyle, G. (2013). Understanding media economics. *Understanding Media Economics*, 1-232.
3. Resnik, G., & Trost, S. (1996). *All you need to know about the movie and TV business*. Simon and Schuster.
4. Harrington, J. (2017). *Best Business Practices for Photographers*. Rocky Nook, Inc..
5. Picard, R. G. (2011). *The economics and financing of media companies*. Fordham Univ Press.

Online Resources

https://mediashift.org/

https://www.youtube.com/watch?v=GFgFhsfKc_0

Course Outcomes		Knowledge level
CO-1	Attain a foundational understanding of different types of Business Organisation	K1
CO-2	Acquire an understanding of organizational structure in the business by explaining the norms in the organization which will not stress the employees but give more productivity.	K2
CO-3	Gain proficiency in creating effective ways to decrease the pressure on the employees.	K4
CO-4	Understanding Business Studies through Objectives, Strategy, Market Analysis, Marketing Strategy and Market Research.	K3
CO-5	Attain understanding on communication in the organization.	K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L(1)	S(3)	M(2)	M(2)	S(3)	M(2)	M(2)	L(1)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)
CO3	L(1)	M(2)	S(3)	S(3)	S(3)	M(2)	S(3)	L(1)	M(2)	M(2)
CO4	L(1)	M(2)	L(1)	M(2)	M(2)	L(1)	S(3)	L(1)	M(2)	M(2)
CO5	L(1)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2
W.AV	1.2	2.2	2	2.2	2.6	2	2.4	1.2	2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	L(1)
CO2	S(3)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	S(3)	L(1)
CO4	L(1)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.2	2.2	2.6	2.8	2

S–Strong (3), M-Medium (2), L-Low (1)

V-Semester- Core

Core 12	Course Code82952	Portfolio & Presentation	T	Credits: 4	Hours:5
Objective	1. Equip students for effective portfolio creation and presentation. 2. Equip students with the skills to create and present effective digital portfolios. 3. Prepare students for professional portfolio presentations in theater, TV, and film, emphasizing presentation techniques and format requirements. 4. Understand the skills to create, use, and analyze marketing mediums effectively. 5. effective portfolio maintenance, design, publishing, and enhancement strategies.				
UNIT-I	Basics of Portfolio; Importance of portfolio - Elements in Portfolio - Types of Portfolio - The Effective Showcase - Development Techniques - Portfolio requirements – Portfolio Development Techniques Do's and Don'ts.				
UNIT-II	Introduction to the Digital Portfolio - The Effective Digital Showcase – Production Techniques - Design document -, Different stages of digital media of their specialization -- Digital Portfolio Do's and Don'ts.				
UNIT-III	Professional Presentation skills - Presentation Format and requirements.				
UNIT-IV	Marketing: Business Cards - Blog and Web pages - Importance of Business Cards, Blog and Web pages - Design and development of Business Cards, Blog and Web pages – Market analysis for using medium of marketing - Introduction to social networking and its importance.				
UNIT-V	Portfolio Maintenance - Components of a Portfolio - Audience, Tone, Range Format, Portfolio Guidelines - Portfolio Design - Portfolio Budget and Deadline planning – Publishing your portfolio - Portfolio enhancement.				

Reference and Text Books:

1. Adler, L. (2013). *Creative 52: Weekly Projects to Invigorate Your Photography Portfolio*. Peachpit Press.
2. Jaen, R. (2012). *Developing and Maintaining a Design-Tech Portfolio: A Guide for Theatre, Film & TV*. Routledge.
3. Eisenman, S. (2006). *Building design portfolios: innovative concepts for presenting your work*. Rockport Publishers.

Course Outcomes		Knowledge level
CO-1	Define and demonstrate the importance of portfolios and Identify key portfolio elements and types.	K1
CO-2	Develop the significance of digital portfolios	K3&K6
CO-3	Demonstrate effective professional presentation skills.	K4
CO-4	Students will develop marketing materials, understand their importance, and harness social networking for success.	K4 & K6
CO-5	Develop, maintain, design, and publish portfolios with audience-focused content and adhere to guidelines.	K2&K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L(1)	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	L(1)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)
CO3	L(1)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)	L(1)	M(2)	M(2)
CO4	L(1)	M(2)	L(1)	M(2)	M(2)	M(2)	S(3)	L(1)	M(2)	M(2)
CO5	L(1)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	M(2
W.AV	1.2	2.2	2	2.2	2.2	2.6	2.8	1.2	2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	L(1)	M(2)	L(1)	L(1)
CO2	S(3)	M(2)	S(3)	M(2)	S(3)
CO3	M(2)	L(1)	M(2)	M(2)	L(1)
CO4	L(1)	L(1)	L(1)	M(2)	M(2)
CO5	M(2)	L(1)	S(3)	L(1)	S(3)
W.AV	2.2	1.2	2.2	1.6	2

S–Strong (3), M-Medium (2), L-Low (1)

DSE 1	Course Code 82953A	Compositing - 1.Rotoscopy	P	Credits: 4	Hours:5
Objectives	1. To develop proficiency in Rotoscopy 2. Understand segments in rotoscopy 3. To understand the character breakdowns and perfection in rotoscopy				

Students are required to create the following:

1. Rotoscope a simple object or character from live-action footage to understand the fundamentals of tracing and timing.
2. Rotoscope a character with varied motion, such as walking, running, or dancing, to practice capturing different movement patterns.
3. Rotoscope a scene with intricate details, like flowing hair or complex clothing, to refine your skills in handling fine elements.
4. Rotoscope a character or object and remove the background, replacing it with a new one to practice isolating elements effectively.
5. Rotoscope a character or object shot against a green screen and integrate it into a new background, paying attention to edge quality.
6. Rotoscope a character interacting with a particle system (smoke, fire, water), ensuring realistic integration and movement.
7. Rotoscope fast-moving objects with motion blur, ensuring that the blur aligns with the speed and direction of the motion.

Outcomes	1. Will relate and understand the techniques and concepts involved in Composting 2. Will be able to extract the Alpha channel using Rotoscopy Technique.. 3. Will understand the importance of tracking which makes the vfx shot more realistic and visually appealing.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	L(1)
CO2	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	S(3)	M(2)	S(3)	S(3)
CO3	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)
W.AV	2.2	2.6	2.8	2	2.2	2.2	2.6	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	M(2)	M(2)	M(2)	M(2)
CO2	M(2)	S(3)	S(3)	M(2)	S(3)
CO3	M(2)	S(3)	M(2)	S(3)	S(3)
CO4	M(2)	M(2)	M(2)	M(2)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	S(3)
W.AV	2	2.6	2.2	2.2	2.6

S–Strong (3), M-Medium (2), L-Low (1)

DSE 1	Course Code 82953B	Compositing 2.Keying	P	Credits: 4	Hours: 5

Objectives	1. Develop proficiency in accurately and efficiently keying out complex backgrounds from footage using industry-standard software. 2. Understand and apply advanced techniques for refining and enhancing keyed elements to seamlessly integrate them into VFX compositions. 3. Demonstrate adeptness in handling various types of footage, mastering the art of keying for different scenarios and challenges. 4. Gain practical experience in troubleshooting common keying issues and artifacts, employing strategies to achieve high-quality results. 5. Acquire knowledge of keying principles, including color theory, matte creation, and edge refinement, to create realistic and professional VFX composites.

Students are required to create the following:

1. Start with a simple green screen shot and replace the background with a static image or video
2. Replace the green screen with a complex or dynamic background, ensuring proper lighting and color matching
3. Chroma key a shot with a subject with fine details like hair, focusing on maintaining realistic transparency and avoiding color spill
4. Composite a subject shot on a green screen interacting with virtual elements (e.g., picking up a digital object)
5. Composite a subject onto a surface that reflects elements of the virtual background, paying attention to realistic reflections
6. Work with a green screen shot that involves dynamic camera movement, ensuring the keyed subject matches the motion of the virtual background
7. Create a composite where the subject interacts with both the foreground and background elements simultaneously, such as reaching out of a window
8. Key a subject shot outdoors against a green screen and replace the background with a different outdoor scene, paying attention to natural lighting variations
9. Refine the matte edges of the keyed subject to achieve a cleaner and more natural integration with the new background
10. Key a subject shot during the day against a green screen and place it in a nighttime virtual scene, adjusting lighting and shadows accordingly

Outcomes	1. Versatile Background Replacement: Chroma keying enables the substitution of a specific color (typically green or blue) with alternate backgrounds, providing flexibility to set scenes in various locations, timeframes, or imaginary worlds. 2. Seamless Integration of Visual Elements: It facilitates the seamless integration of CGI elements into live-action footage, allowing for the inclusion of fantastical creatures, futuristic environments, or any digitally created content. 3. Complex Scene Creation: Chroma keying enables the composite creation of complex scenes by combining multiple shots or performances in front of the green or blue screen, resulting in visually captivating sequences. 4. Isolation of Foreground Elements: It allows for the isolation of specific foreground elements like actors, props, or objects, enabling independent manipulation or enhancement separate from the background. 5. Real-Time Visuals in Broadcasting: In live broadcasting, chroma keying facilitates real-time insertion of backgrounds or graphical elements behind presenters or performers, enhancing visual storytelling and engagement.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	S(3)	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)
CO2	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)
CO3	S(3)	M(2)	S(3)	S(3)	S(3)	S(3)	S(3)	M(2)	M(2)	S(3)
CO4	M(2)	S(3)	S(3)	M(2)	S(3)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	S(3)	S(3)
W.AV	2.6	2.4	2.8	2.2	2.8	2.6	2.2	2.2	2.4	2.6

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	M(2)
CO3	M(2)	S(3)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	M(2)
W.AV	2.4	2.2	2.6	2.8	2.2

S–Strong (3), M-Medium (2), L-Low (1)

DSE 1	Course Code 82953C	Compositing 3.Tracking	P	Credits: 4	Hours: 5

Objectives	1. Understand the principles and techniques of camera tracking to integrate CGI elements seamlessly into live-action footage. 2. Master the use of tracking software tools to accurately match virtual objects to the movement and perspective of a filmed scene. 3. Develop proficiency in solving tracking challenges such as object occlusion, reflections, and lens distortion. 4. Learn advanced tracking methods for complex shots, including motion blur and varying lighting conditions. 5. Apply acquired knowledge to create convincing visual effects by combining tracked elements with live-action footage in a professional workflow.

Students are required to create the following:

1. Track the movement of a simple object within a scene, ensuring accurate and consistent tracking throughout.
2. Perform planar tracking on a flat surface within a shot, such as a wall or table, and overlay a graphic or text onto it.
3. Track the camera movement in a shot to integrate 3D elements into the scene, such as adding a virtual object that moves with the camera.
4. Integrate motion-captured data onto a live-action character or object in the scene, ensuring proper alignment and timing.
5. Track a moving object within a scene and make a virtual element (like a CG character or object) interact convincingly with it.
6. Track facial features in a shot and apply facial animation data or augment the face with virtual elements.
7. Track a scene with significant foreground and background parallax, ensuring accurate tracking for both planes.
8. Track the movement of a device screen within a shot and replace it with a tracked video or graphic.
9. Track a shot with noticeable lens distortion and apply correction techniques to align virtual elements accurately.
10. Track the camera movement in a live-action shot and integrate it into a virtual set, ensuring realistic interaction between the live and virtual elements.

Outcomes	1. Object and Camera Tracking: It enables precise tracking of objects or camera movement within a scene, ensuring accurate placement and interaction of digital elements. 2. Seamless Integration of CGI: Tracking assists in seamlessly integrating CGI elements into live-action footage by matching their movements with the camera, creating convincing and realistic visual effects. 3. Motion Capture for Animation: Tracking aids in capturing real-world movements for animation purposes, allowing for lifelike character movements or realistic motion sequences. 4. Stabilization and Enhancement: It helps stabilize shaky footage, improving visual quality, and allows for enhancements like adding motion blur or adjusting lighting to match the scene. 5. Augmented Reality (AR) and Virtual Set Extensions: Tracking facilitates AR applications and virtual set extensions by accurately placing digital objects or extending physical sets with digital elements in real-time or post-production.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)	S(3)	S(3)	M(2)
CO3	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	S(3)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)
W.AV	2.4	2	2.6	2	2.2	2.2	2.8	2.6	2.4	2.2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	S(3)	M(2)	M(2)	S(3)	S(3)
CO4	M(2)	M(2)	S(3)	S(3)	M(2)
CO5	S(3)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.4	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

DSE 2	Course Code82954A	CGI for Visual Effects - 1.Modelling & Texturing	P	Credits: 4	Hours: 5

Objectives	1. Understand fundamental principles of 3D modeling techniques to create accurate and visually compelling models. 2. Master advanced texturing tools and methods for realistic surface detailing and material representation. 3. Develop proficiency in UV mapping and unwrapping to efficiently texture 3D models. 4. Apply lighting and shading principles to enhance textures and bring depth to 3D models. 5. Learn industry-standard software to execute modeling and texturing tasks effectively in a professional workflow.

Students are required to create the following:

1. Model a simple everyday object, like a mug or a chair, paying attention to accurate proportions and details.
2. Create a low-poly character model with basic features, focusing on proper topology for animation.
3. Model a small indoor or outdoor scene, including furniture or natural elements, and ensure proper scale and realism.
4. Model a vehicle of your choice, such as a car or spaceship, emphasizing clean geometry and accurate proportions.
5. Model a building or architectural structure, incorporating details like doors, windows, and realistic textures.
6. Sculpt and model an organic form, like a tree or a rock, to practice creating natural shapes and textures.
7. Unwrap the UVs of a model efficiently, ensuring minimal distortion and proper utilization of texture space.
8. Paint textures for a simple object or character, considering color, specular, and normal maps for added realism.
9. Experiment with procedural textures to create surfaces like wood, metal, or marble without relying on image textures.
10. Set up a physically based rendering (PBR) material system for a model, incorporating base color, roughness, metallic, and normal maps.

Outcomes	1. Accurate Object Representation: Modeling involves creating 3D models of objects, characters, environments, etc. It allows for accurate representation, detailing, and structuring of various elements within a virtual space, ensuring authenticity and realism. 2. Realistic Surface Detailing: Texturing enhances 3D models by applying detailed surface textures, colors, and materials. This process adds depth, realism, and visual richness to the objects, making them more lifelike and engaging. 3. Efficient Resource Utilization: Optimized modeling and texturing workflows contribute to efficient resource utilization in terms of memory and rendering. Well-crafted models and textures ensure smoother performance and quicker rendering times, especially in complex scenes. 4. Enhanced Visual Aesthetics: Texturing allows for the creation of visually appealing and compelling visuals. By adding intricate details, bumps, scratches, reflections, and other surface characteristics, models become more aesthetically pleasing and believable. 5. Interchangeable Assets for Various Platforms: Properly modeled and textured assets are versatile and can be utilized across multiple platforms, such as video games, films, animations, and virtual reality experiences. They can adapt to different requirements while maintaining quality and consistency.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	L(1)
CO2	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)
CO4	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2	2.6	2.8	2	2.4	2	2.4	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	M(2)	S(3)	M(2)
CO2	M(2)	S(3)	M(2)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2.2	2.2	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

DSE 2	Course Code 82954B	CGI for Visual Effects - 2.Lighting & Rendering	P	Credits: 4	Hours: 5

Objectives

1. Realism and Immersion: The primary goal is to replicate real-world lighting conditions to create a believable and immersive environment. This involves mimicking natural light sources, shadows, reflections, and global illumination to make the scene look convincing to the viewer.
2. Emphasizing Mood and Atmosphere: Lighting contributes significantly to setting the mood and atmosphere of a scene. It can evoke emotions and enhance storytelling by using different color temperatures, intensities, and positioning to create dramatic or subtle effects.
3. Highlighting Object Details: Effective lighting highlights the important aspects of the scene, emphasizing textures, shapes, and details of objects. This showcases the depth and intricacies of the 3D models, making them visually appealing and understandable to the viewer.
4. Optimizing Rendering Speed and Quality: Balancing rendering speed and quality is crucial. Achieving high-quality visuals without excessively long rendering times is a key objective. Techniques such as efficient use of global illumination, optimized shaders, and render settings help in achieving this balance.
5. Consistency and Cohesiveness: Ensuring consistency in lighting throughout the scene maintains coherence and believability. Lighting should be coherent with the scene's context, maintaining a consistent mood and aesthetic across different shots or scenes in a project.

Students are required to create the following:

1. Create a three-point lighting setup for a simple scene, ensuring proper placement of key, fill, and rim lights.
2. Illuminate an interior scene, paying attention to the color temperature of light sources and shadows.
3. Light an outdoor scene as if it were illuminated by daylight, considering the direction of sunlight and atmospheric effects.
4. Set up lighting for a night scene, balancing artificial light sources and creating a convincing moonlight effect.
5. Light a product (e.g., a simple object or a piece of furniture) to showcase its form and texture effectively.
6. Familiarize yourself with Maya's render settings and render a simple scene with default settings.
7. Utilize render layers and passes to separate elements (e.g., beauty pass, shadow pass) for better post-production control.
8. Implement depth of field in a scene to simulate realistic camera focus, emphasizing certain elements.
9. Apply motion blur to a scene with moving objects or a camera, ensuring a realistic representation of motion.
10. Experiment with Final Gather and Global Illumination settings to achieve realistic lighting and indirect illumination.

Outcomes	1. Realistic Visuals: Effective lighting techniques contribute to creating lifelike and realistic scenes by accurately simulating how light interacts with various surfaces, materials, and environments. 2. Enhanced Mood and Atmosphere: Thoughtful lighting design influences the mood and atmosphere of a scene, setting the tone and evoking emotions by using different lighting styles, colors, and intensities. 3. Detail and Texture Highlighting: Proper lighting highlights textures, details, and intricacies within 3D models, bringing out depth and surface characteristics to make objects look more tangible and appealing. 4. Visual Clarity and Depth: Well-executed lighting enhances the perception of depth and dimension within a scene, emphasizing the foreground, midground, and background elements to create a sense of space and immersion. 5. Final Image Quality: Rendering, the process of generating the final 2D image or animation from the 3D scene, involves lighting calculations, shading, and texturing to produce high-quality, photorealistic outputs suitable for films, games, or visual presentations.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	L(1)
CO2	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	S(3)
W.AV	2.4	2	2.6	2	2.2	2.2	2.8	2.6	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	M(2)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	M(2)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	S(3)
CO5	M(2)	M(2)	S(3)	M(2)	M(2)
W.AV	2.4	2.2	2.4	2	2.4

S–Strong (3), M-Medium (2), L-Low (1

V-Semester - DSE 2					
DSE 2	Course Code 82954C	CGI for Visual Effects - 3.Rigging & Animation	P	Credits: 4	Hours: 5
Objectives	1. Skeleton Setup (Rigging): Establishing a robust skeleton structure within 3D models to enable articulation and movement, allowing animators to control and manipulate characters or objects realistically. 2. Natural Movement and Biomechanics: Rigging aims to mimic real-world physics and anatomy, ensuring that characters or objects move naturally and believably according to their design and intended actions. 3. Facial Expression and Emotion: Creating complex facial rigs and animation systems to convey emotions and expressions, enhancing character depth and storytelling in animated films, games, or simulations. 4. Efficient Control Systems: Developing intuitive control systems within rigs that allow animators to easily manipulate various aspects of a character or object's movement, improving workflow efficiency. 5. Fluid and Expressive Animation: Employing animation techniques to bring characters to life by delivering smooth, fluid movements that communicate personality, mood, and narrative effectively.				

Students are required to create the following:

1. Create a basic joint chain for a character's limb, such as an arm or leg, focusing on proper orientation and hierarchy.
2. Set up an IK/FK switch for a character's arm or leg, allowing seamless switching between Inverse Kinematics and Forward Kinematics.
3. Implement stretchy limbs in the rig to allow for natural deformation during animation, especially useful for cartoon characters.
4. Rig a spine with both FK and IK controls, ensuring smooth deformation and flexibility for animation.
5. Create a facial rig with controls for facial expressions, including features like blinking, smiling, and eyebrow movement.
6. Animate a simple walk cycle for a character, focusing on weight distribution, leg movement, and natural pacing.
7. Animate a character performing lip sync for a short piece of dialogue, syncing mouth movements with speech.
8. Animate a character expressing a range of emotions (happy, sad, angry) to practice conveying emotions through movement.
9. Animate the movement of a character's hair in response to different actions or environmental factors.
10. Animate a character interacting with a prop, such as picking up an object or opening a door

Outcomes	1. Character Rigging for Articulation: Rigging involves creating digital skeletons and controls for characters or objects, enabling animators to articulate movements realistically. It allows for precise control over joints, muscles, and deformations. 2. Naturalistic Animation: Rigging supports the creation of natural and expressive animations by providing animators with tools to manipulate characters' movements, facial expressions, and gestures, bringing them to life with authenticity. 3. Mechanical Rigging for Objects: Apart from characters, rigging also applies to non-character elements, like vehicles, machines, or props, allowing for the realistic simulation of mechanical movements or interactions. 4. Procedural Animation and Simulations: Rigging can involve setting up procedural animation systems or simulations, enabling automated or physics-based movements, such as cloth simulations, fluid dynamics, or dynamic hair/fur. 5. Efficiency and Workflow Enhancement: A well-structured rig can streamline animation workflows, allowing animators to focus more on creativity and less on technical limitations. Rigging pipelines that optimize efficiency contribute significantly to project timelines and quality.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	S(3)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)
W.AV	2.4	2.4	2	2.4	2.2	2.2	2.6	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	S(3)	M(2)	M(2)	S(3)	S(3)
CO4	M(2)	M(2)	S(3)	S(3)	M(2)
CO5	S(3)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.4	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

DSE 3	Course Code 82955A	Matchmove & Rotomation - 1. Camera tracking	P	Credits: 4	Hours: 5

Objectives	1. Accurate Scene Reconstruction: Camera tracking aims to accurately reconstruct the three-dimensional geometry and camera movement of a live-action scene, allowing for seamless integration of virtual elements. 2. Precise Object Placement: It enables precise placement of digital elements or CGI within the scene, ensuring that they move convincingly in sync with the camera's motion. 3. Realistic Virtual Environments: The objective is to create realistic virtual environments by matching the movement and perspective of the virtual camera with the live-action camera, enhancing immersion. 4. Seamless Scene Continuity: Camera tracking helps maintain continuity between different shots or scenes, ensuring consistent camera movements for smooth transitions. 5. Efficient Compositing: The goal is to streamline the compositing process by accurately tracking the camera, allowing for efficient integration of VFX elements into the live-action footage.

Students are required to create the following:

1. Track the movement of a live-action camera in a given footage using camera tracking software. Import the camera solve into a 3D software package, align a virtual camera to the real-world camera movement, and composite a 3D object into the scene.

2. Incorporate a 3D model or object into a live-action shot with camera tracking. Ensure the 3D element convincingly follows the camera movement and seamlessly integrates with the live footage, considering lighting, shadows, and reflections.

3. Utilize camera tracking techniques to project a matte painting onto 3D geometry, creating the illusion of an expansive environment. Adjust the camera solve and refine the projection to achieve realistic parallax and perspective

4. Track and matchmove a specific feature or object in a moving scene. Integrate CGI elements onto the tracked object, ensuring accurate alignment and movement synchronization throughout the shot.

5. Tackle a challenging shot with dynamic camera movements, such as a pan, tilt, or zoom. Apply camera tracking to capture the intricate details of the camera's motion and use the tracked data to seamlessly integrate visual effects or CGI elements

Outcomes	1. Seamless Integration of CG Elements: Camera tracking enables the precise placement of computer-generated elements into live-action footage, ensuring they align convincingly with the camera's movement, perspective, and lighting. 2. Realistic Scene Reconstruction: It allows for the reconstruction of 3D scenes by accurately replicating the movement and position of the camera, creating realistic backgrounds or environments. 3. Dynamic Compositing: Camera tracking facilitates dynamic compositing by matching the movement of the camera, enabling seamless blending of different shots or elements within a scene. 4. Virtual Camera Movements: It enables the creation of virtual camera movements in 3D software, allowing filmmakers to explore various angles or perspectives without physical limitations. 5. Enhanced Visual Effects Integration: Camera tracking ensures precise integration of visual effects, such as explosions, set extensions, or digital environments, aligning them realistically with the camera's motion and perspective.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2.4	2	2.4	2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

DSE 3	Course Code82955B	Matchmove & Rotomation - 2. Object Tracking	P	Credits: 4	Hours: 5
Objectives	1. Consistent Object Placement: Object tracking aims to maintain consistent placement and movement of digital elements in relation to the real-world environment, ensuring a seamless blend of CGI with live-action footage. 2. Enhanced Visual Realism: It seeks to enhance visual realism by accurately matching the movements of digital objects or characters to the movements of the camera or physical elements in the scene. 3. Precise Integration of CGI: Object tracking enables the precise integration of computer-generated imagery (CGI) into live-action sequences, allowing digital elements to interact convincingly with the environment and characters. 4. Dynamic Scene Composition: It enables the creation of dynamic scene compositions by tracking and positioning virtual elements accurately, allowing for intricate and layered visual effects in complex sequences. 5. Seamless Interaction and Continuity: Object tracking ensures seamless interaction between live-action and digital elements, maintaining continuity throughout the scene and delivering a cohesive visual narrative.				
Students are required to create the following: **1.** Track a single point or feature in a live-action shot using tracking software (e.g., Nuke, After Effects, or Mocha). Apply the tracked data to a null object or a simple graphic element to ensure accurate tracking. **2.** Track a planar surface, such as a wall or tabletop, in a video clip. Integrate a computer-generated image or text onto the tracked surface, adjusting for perspective changes and occlusions **3.** Replace a real-world object in a video clip with a 3D model. Track the motion of the original object and match the lighting and shading of the 3D model to the live-action scene **4.** Perform a camera track on a complex shot with camera movement. Integrate a 3D object or scene into the live-action footage, ensuring that the virtual elements align seamlessly with the camera's motion. **5.** Utilize motion capture data or create a simple animation in 3D software. Track a live-action actor's movements and integrate the motion-captured or animated character into the video, adjusting for scale, perspective, and lighting					
Outcomes	1. Seamless Integration of CGI Objects: Object tracking allows for the seamless integration of computer-generated objects into live-action footage, ensuring their movements match the scene's dynamics convincingly. 2. Realistic Visual Effects: It enables the addition of visual effects such as explosions, fire, or particles that interact realistically with the tracked objects, enhancing the overall realism of the scene. 3. Dynamic Product Placement: Object tracking facilitates dynamic product placements in films, commercials, or videos, ensuring accurate positioning and movement of branded objects within the scene. 4. Precise Motion Analysis: It provides accurate motion analysis for sports broadcasts, allowing for the overlay of graphics or data that follow athletes' movements accurately. 5. Character Interaction and Animation: Object tracking aids in character animation by accurately placing animated characters or objects within a scene, ensuring realistic interaction with the environment or other elements.				

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.4	2	2.6	2.8	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	M(2)	S(3)	M(2)	M(2)
CO2	M(2)	M(2)	M(2)	M(2)	S(3)
CO3	S(3)	M(2)	M(2)	M(2)	S(3)
CO4	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	S(3)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.4	2	2.6

S–Strong (3), M-Medium (2), L-Low (1)

DSE 3	Course Code 82955C	Matchmove & Rotomation - 3. Rotomation	P	Credits: 4	Hours: 5

Objectives	1. Accurate Motion Replication: The primary goal of rotomation is to precisely replicate real-world movements, ensuring that digital elements mimic the motions of live-action footage seamlessly. 2. Integration of CGI with Live Action: Rotomation aims to integrate computer-generated characters or objects into live-action scenes realistically, maintaining consistency in movement and interaction. 3. Enhancement of Visual Realism: It strives to enhance the visual realism of VFX by incorporating lifelike movements, expressions, and gestures into animated characters or elements. 4. Seamless Interaction: Rotomation ensures a seamless interaction between live actors and CGI elements, allowing for convincing and natural exchanges or engagements within a scene. 5. Consistency and Continuity: It aims to maintain consistency and continuity throughout a sequence or film by accurately animating digital elements to match the movements of live-action elements, avoiding discrepancies or discontinuities.

Students are required to create the following:

1. Basic Rotomation:
a. Rotomate a simple 3D object to match the movement of a live-action element, such as a person walking.
2. Object Interaction:
a. Rotomate a 3D object to interact with a live-action object, like a virtual hand picking up a real object.
3. Character Integration:
a. Rotomate a 3D character into a live-action scene, ensuring proper alignment with the environment and other elements.
4. Lip Sync Rotomation:
a. Rotomate the movement of a character's mouth to match a provided audio track for lip sync.
5. Camera Shake Integration:
a. Rotomate 3D elements to match the camera shake or jitter in a live-action shot for added realism.

Outcomes	1. Realistic Character Animation: Rotomation allows for the creation of lifelike character movements by animating over live-action footage, providing authenticity and realism to CGI characters. 2. Precise Object Interaction: It enables accurate interaction between CGI elements and live-action objects or actors within a scene, ensuring seamless integration and realistic physics. 3. Dynamic Camera Matching: Rotomation assists in matching the movements of virtual cameras with the original camera movements, ensuring consistency and coherence between the CGI and live-action elements. 4. Complex Scene Reconstruction: It facilitates the reconstruction of complex scenes by using live-action footage as a base for adding digital enhancements, backgrounds, or elements, allowing for intricate and visually stunning sequences. 5. Enhanced Visual Storytelling: Rotomation contributes to enhanced storytelling by enabling the creation of visually engaging sequences, expanding creative possibilities in films, commercials, and other visual media.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

CO1	M(2)	S(3)	M(2)	M(2)	L(1)	S(3)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	L(1)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	L(1)	M(2)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	L(1)	M(2)	M(2)	S(3)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	1.2	2.2	2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

V-Semester - Core					
Core 13	Course Code 82956	Portfolio & Presentation - Practical	P	Credits: 2	Hours: 4

Objectives	➢ Curate a portfolio showcasing a range of multimedia projects, demonstrating versatility and expertise ➢ Incorporate consistent branding elements to establish a recognizable and professional personal identity. ➢ Highlight key achievements and successful projects to demonstrate skills, experience, and impact ➢ Include interactive elements, such as clickable links and engaging content, to captivate and impress viewers. ➢ Feature endorsements and recommendations to build credibility and showcase positive professional relationships.

1. Curate a portfolio showcasing a range of multimedia projects, demonstrating versatility and expertise
2. Incorporate consistent branding elements to establish a recognizable and professional personal identity.
3. Highlight key achievements and successful projects to demonstrate skills, experience, and impact
4. Include interactive elements, such as clickable links and engaging content, to captivate and impress viewers.
5. Feature endorsements and recommendations to build credibility and showcase positive professional relationships.

Outcomes	➢ Produce a portfolio that, demonstrates understanding and articulation, through ➢ drawings, concepts sketches, design documents and presentation an understanding of ➢ the design elements of the medium of their specialization. ➢ Develop Game that, will demonstrate the critical aspects of development as a media ➢ professional in the medium of specialization. ➢ Respond effectively to questions following oral presentation.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

CO1	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.2	2.2	2	2.6	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

VI -Semester- Core					
Core 14	Course Code82961	Project Management	T	Credits: 3	Hours:4

Objective	1. Understand the fundamental concepts and principles of project management applied to design and media contexts. 2. Apply techniques to effectively plan and initiate design and media projects, including scoping, scheduling, and resource allocation. 3. Execute and monitor design and media projects by managing communication, stakeholders, risks, quality, and performance. 4. Utilize various tools and methodologies, such as project management software, time management techniques, Agile methodologies, and collaboration platforms, in creative project management. 5. Evaluate, conclude, and document design and media projects while assessing success, gathering lessons learned, and preparing for future continuous improvement
UNIT-I	Unit 1: Introduction to Project Management Concept and principles of project management - Project life cycle and phases- Types of projects in design and media - Roles and responsibilities of project team members - Importance of project management in design and media
UNIT-II	Unit 2: Project Planning and Initiation Defining project scope and objectives - Develop project work breakdown structure (WBS) - Creating project schedules and timelines using Gantt charts - Resource estimation and allocation - Budgeting and project cost control
UNIT-III	Unit 3: Project Execution and Monitoring Communication management in design and media projects - Stakeholder management and engagement strategies - Risk identification, assessment, and mitigation - Quality control and assurance in design projects - Performance monitoring and reporting
UNIT-IV	Unit 4: Tools and Techniques for Project Management Project management software and applications (e.g., Asana, Trello) - Time management techniques for creative professionals - Agile methodologies for project execution - Collaboration tools and platforms for creative teams
UNIT-V	Unit 5: Project Evaluation and Conclusion Project closure and evaluation practices - Measuring project success and lessons learned - Documentation and report writing for design and media projects - Preparing for future projects and continuous improvement

Reference and Text Books:

- Dorich, J., Li, Y., Reklaoui, L., & Steeves, M. (2013). Sustainable Solutions in the Construction Industry of Hong Kong.
- Wiśniewski, R., & Bukalska, I. (2020). The Interactive Dimension of Creating Cultural Artifacts Using Agile Methodologies.
- Heldman, K. (2018). *PMP: project management professional exam study guide*. John Wiley & Sons.

Online Resources

https://www.youtube.com/watch?v=oRbDDUb2vRI
https://www.pmi.org/
https://www.agilealliance.org/

Course Outcomes		Knowledge level
CO-1	Demonstrate comprehension of project management concepts, principles, and the project life cycle within design and media contexts.	K1

CO-2	Apply techniques to initiate, plan, and define scope, objectives, schedules, resources, and budgets for design and media projects.	K3&K6
CO-3	Execute project tasks effectively by managing communication, stakeholders, risks, quality, and performance in design and media endeavors.	K4
CO-4	Utilize project management tools, time management strategies, agile methodologies, and collaboration platforms specific to creative teams.	K5
CO-5	Evaluate project success, close projects effectively, generate reports, and leverage lessons learned for continuous improvement in design and media project endeavors.	K2&K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L(1)	S(3)	M(2)	M(2)	L(1)	M(2)	M(2)	L(1)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)
CO3	L(1)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	L(1)	M(2)	M(2)
CO4	L(1)	M(2)	L(1)	M(2)	M(2)	L(1)	S(3)	L(1)	M(2)	M(2)
CO5	L(1)	M(2)	M(2)	S(3)	L(1)	M(2)	M(2)	L(1)	M(2)	M(2
W.AV	1.2	2.2	2	2.2	1.6	2	2.4	1.2	2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	L(1)	M(2)	S(3)	L(1)
CO2	S(3)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	L(1)	M(2)	M(2)	L(1)
CO4	L(1)	L(1)	L(1)	L(1)	M(2)
CO5	M(2)	L(1)	S(3)	M(2)	S(3)
W.AV	2.2	1.2	2.2	2.2	2

S–Strong (3), M-Medium (2), L-Low (1)

VI-Semester- Core

Core 15	Course Code 82962	Emerging Technologies and Trends in VFX.	T	Credits: 4	Hours:4

Objective	1. Understand the application of AI and machine learning in various facets of design and media production, including rotoscoping, facial animation, character rigging, and environment creation. 2. Explore the integration of real-time rendering engines like Unreal Engine and Unity within virtual production workflows for film and television, encompassing LED walls and motion capture technology. 3. Analyze successful case studies of real-time VFX projects, emphasizing their techniques and impact in the industry. 4. Examine the utilization of VR training simulations, virtual sets, AR/VR, and their influence on VFX, alongside ethical considerations and implications for storytelling and interactive content. 5. Investigate futuristic technologies such as cloud-based rendering, AI-driven narrative generation, brain-computer interfaces, and the ethical challenges related to deepfakes and misinformation in VFX.
UNIT-I	AI and Machine Learning (ML) for automating manual tasks and improving efficiency in Design and Media - AI for Rotoscoping,facial animation, character rigging, and environment creation -deepfakes
UNIT-II	Real-time rendering engines like Unreal Engine and Unity -Virtual production workflows for film and television - LED walls and motion capture technology - Case studies of successful real-time VFX projects
UNIT-III	VR training simulations and virtual sets using VFX -Exploring the future of AR/VR and its impact on VFX - AR filters and interactive storytelling using VFX techniques - Usage of VR and AR in current industry.
UNIT-IV	Cloud-based rendering and collaborative VFX workflows - Realistic character creation using AI - Futuristic concepts like brain-computer interfaces for VFX manipulation
UNIT-V	AI-driven narrative generation and interactive content -Deepfakes and misinformation - Ethical considerations of emerging technologies in VFX

Reference and Text Books:

1. Papagiannis, H. (2017). Augmented human: How technology is shaping the new reality. " O'Reilly Media, Inc.".
2. Aukstakalnis, S. (2016). Practical augmented reality: A guide to the technologies, applications, and human factors for AR and VR. Addison-Wesley Professional.
3. Schmalstieg, D., & Hollerer, T. (2016). Augmented reality: principles and practice. Addison-Wesley Professional.
4. Cremona, C., & Kavakli, M. (2023). The Evolution of the Virtual Production Studio as a Game Changer in Filmmaking. In Creating Digitally: Shifting Boundaries: Arts and Technologies—Contemporary Applications and Concepts (pp. 403-429). Cham: Springer International Publishing.
5. Karnouskos, S. (2020). Artificial intelligence in digital media: The era of deepfakes. IEEE Transactions on Technology and Society, 1(3), 138-147.

Online Resources

https://www.youtube.com/@SimplilearnOfficial
https://www.youtube.com/@freecodecamp
https://www.youtube.com/@promptjungle

Course Outcomes	Knowledge level

CO-1	Demonstrate proficiency in utilizing AI and machine learning for automating manual tasks and enhancing efficiency across various design and media disciplines, such as rotoscoping, facial animation, character rigging, and environment creation.	K1
CO-2	Explore and apply real-time rendering engines like Unreal Engine and Unity within virtual production workflows for film and television, including LED walls and motion capture technologies, through the study of successful real-time VFX projects.	K3
CO-3	Develop expertise in VR training simulations, virtual sets using VFX, and AR/VR technologies' impact on VFX, including AR filters and interactive storytelling techniques, reflecting the current industry trends.	K2 & K4
CO-4	Evaluate and implement cloud-based rendering and collaborative VFX workflows while exploring futuristic concepts like AI-driven realistic character creation and potential interfaces like brain-computer interfaces for VFX manipulation.	K5
CO-5	Critically analyze the ethical implications and considerations surrounding emerging technologies in VFX, including deepfakes and misinformation, while also exploring AI-driven narrative generation and interactive content creation in an ethically responsible manner.	K6

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L(1)	S(3)	M(2)	M(2)	L(1)	M(2)	M(2)	L(1)	M(2)	S(3)
CO2	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)
CO3	L(1)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	L(1)	M(2)	M(2)
CO4	L(1)	M(2)	L(1)	M(2)	M(2)	L(1)	S(3)	L(1)	M(2)	M(2)
CO5	L(1)	M(2)	M(2)	S(3)	L(1)	M(2)	M(2)	L(1)	M(2)	M(2
W.AV	1.2	2.2	2	2.2	1.6	2	2.4	1.2	2	2.4

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	L(1)	M(2)	S(3)	L(1)
CO2	S(3)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	L(1)	M(2)	M(2)	L(1)
CO4	L(1)	L(1)	L(1)	L(1)	M(2)
CO5	M(2)	L(1)	S(3)	M(2)	S(3)
W.AV	2.2	1.2	2.2	2.2	2

S–Strong (3), M-Medium (2), L-Low (1)

VI-Semester - Core					
Core 16	Course Code 82963	Game Engine for VFX - Practical	P	Credits: 5	Hours:5

Objectives

1. Mastery of Unreal Engine's Cascade particle editor to craft diverse and captivating particle effects, enhancing scenes with fire, smoke, water splashes, magical spells, and more.
2. Proficiency in integrating environmental effects like rain, snow, fog, and weather systems to elevate atmosphere and realism in scenes.
3. Expertise in developing custom shaders for materials, focusing on effects such as refraction, distortion, and holographic surfaces to create visually stunning experiences.
4. Advanced skills in setting up dynamic lighting systems to amplify the visual appeal of interior scenes using Unreal Engine's lighting tools.
5. Ability to design character-specific effects, including magical auras, weapon trails, unique abilities, and interactive elements triggered by in-game events, employing particle systems, animation, and dynamic changes based on player actions within Unreal Engine.

Students are required to create the following:

1. Create diverse particle effects such as fire, smoke, water splashes, or magical spells using Unreal Engine's Cascade particle editor.
2. Integrate environmental effects like weather systems (rain, snow, fog) into a given scene to enhance its atmosphere and realism.
3. Create custom shaders for materials, focusing on effects like refraction, distortion, or holographic surfaces.
4. Setting up dynamic lighting systems using Unreal Engine's lighting tools to enhance the visual appeal of an Interior scene.
5. Character-specific effects such as magical auras, weapon trails, or unique abilities using particle systems and animation in Unreal Engine.
6. Create interactive effects triggered by in-game events, like explosions that affect the environment or dynamic changes based on player actions.
7. Create cinematic sequences using Unreal Engine's Sequencer tool, incorporating various visual effects and camera techniques to tell a story.
8. To create immersive visual effects specifically designed for virtual reality (VR) experiences within Unreal Engine.
9. To create immersive visual effects specifically designed for Augmented reality (AR) experiences within Unreal Engine.
10. Create a procedurally generated effects using Unreal engine.

Outcomes

- A portfolio showcasing the different particle systems created with varying complexities and behaviors.
- demonstrating the impact of environmental effects on the scene's visual appeal.
- Documentation detailing shader parameters and their impact on visual output.
- Documentation detailing optimization techniques used and their impact on resource consumption.
- VR/AR experiences with immersive visual effects tailored specifically for those environments.
- Exploration of innovative and experimental visual effects like stylized rendering or procedurally generated effects, with documentation on the techniques and their potential applications.

Reference and Text Books:

1. An, D. (2022). Technology-driven Virtual Production. *Revista FAMECOS*, *29*(1), e43370-e43370.
2. Karis, B., & Games, E. (2013). Real shading in unreal engine 4. *Proc. Physically Based Shading Theory Practice*, *4*(3), 1.
3. Carnall, B. (2016). *Unreal Engine 4. X By Example*. Packt Publishing Ltd.
4. Gao, J., Chen, Y., Cao, B., Chen, Y., & Li, C. (2023). Training Scene Construction and Motion Realization of Unmanned Craft based on Unreal Engine. *Frontiers in Computing and Intelligent Systems*, *4*(3), 56-61.

Online Resources
https://www.youtube.com/channel/UCGKjGGjdl-GzEcFPf1EQwqw https://www.youtube.com/@UnrealSensei https://www.youtube.com/@magnetvfx

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	S(3)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.6	2.8	2.6	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	M(2)	S(3)	M(2)
CO2	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	S(3)	S(3)	M(2)	S(3)	S(3)
CO4	M(2)	M(2)	M(2)	S(3)	M(2)
CO5	S(3)	S(3)	M(2)	M(2)	S(3)
W.AV	2.6	2.4	2	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

V-Semester - DSE 4					
DSE 4	Course Code 82964A	FX & Advanced Compositing 1. FX	P	Credits: 4	Hours: 5

Objectives	1. Demonstrate proficiency in particle systems by simulating dynamic behavior like gravity, turbulence, and collisions, managing attributes like velocity, lifespan, and external forces within the simulation. 2. Showcase expertise in fluid dynamics using Houdini's FLIP solver, exhibiting precise control over viscosity, surface tension, and interaction with obstacles to create realistic scenarios such as pouring liquids or splashing water. 3. Master pyrotechnic effects by manipulating parameters such as density, temperature, turbulence, and color to create visually appealing and realistic simulations of fire or smoke using Houdini's tools. 4. Showcase understanding of rigid body dynamics in Houdini, illustrating interactions, collisions, constraints, and responses to external forces to create realistic and engaging simulations involving rigid bodies. 5. Execute a self-directed FX project integrating multiple techniques learned, applying creativity and technical skills to create a visually striking and conceptually intriguing visual effect related to chosen VFX aspects such as magic effects or sci-fi elements.
Students are required to create the following: **1.** Create a scene where particles are emitted from a specific source and exhibit dynamic behavior (such as gravity, turbulence, or collisions). Demonstrate understanding of particle attributes like velocity, lifespan, and forces affecting their motion. **2.** Design a fluid simulation using Houdini's FLIP solver. Create a scenario (e.g., pouring liquid, splashing water) that showcases your ability to control viscosity, surface tension, and interaction with obstacles. **3.** Build a pyrotechnic effect like fire or smoke. Showcase your control over parameters such as density, temperature, turbulence, and color to create a realistic and visually appealing result **4.** Construct a simulation involving rigid bodies using Houdini's dynamics tools. Show the interaction and behavior of these bodies upon collision, using constraints, and demonstrating their responses to external forces **5.** Develop a self-directed FX project that combines multiple techniques learned. Choose an aspect of VFX that intrigues you (e.g., magic effects, sci-fi elements) and showcase your creativity and technical skills in executing this project.	
6. Outcomes	1. Understand and apply particle attributes like velocity, lifespan, and forces (e.g., gravity, turbulence, collisions) in a simulated particle system to create dynamic and realistic behavior. 2. Demonstrate proficiency in Houdini's FLIP solver by designing and controlling a fluid simulation, showcasing skills in managing viscosity, surface tension, and obstacle interaction for scenarios like pouring liquid or splashing water. 3. Showcase expertise in creating pyrotechnic effects (e.g., fire, smoke) using Houdini, displaying control over parameters such as density, temperature, turbulence, and color to generate visually appealing and realistic results. 4. Exhibit proficiency in Houdini's dynamics tools by constructing simulations involving rigid bodies, showcasing their interaction upon collision, use of constraints, and response to external forces to create dynamic and believable scenarios. 5. Develop a self-directed FX project integrating various techniques learned, demonstrating creativity and technical skills to execute a chosen VFX aspect (e.g., magic effects, sci-fi elements) in a visually compelling and technically proficient manner.

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

CO1	M(2)	S(3)	M(2)	M(2)	L(1)	S(3)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	L(1)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	L(1)	M(2)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	L(1)	M(2)	M(2)	S(3)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	1.2	2.2	2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

DSE 4	Course Code82964B	FX & Advanced Compositing 2 .CFX	P	Credits: 4	Hours:5
Objectives	**1.** Understand cloth dynamics and simulation techniques for character animation. **2.** Implement flag or curtain animation using simulation tools and techniques. **3.** Develop crowd simulations to replicate diverse behaviors and movements. **4.** Master hair simulation methods for realistic character animation. **5.** Apply fur simulation techniques to create lifelike textures and movement in character animation.				
Students are required to create the following: **1.** Create a cloth simulation for a character animation **2.** Create a flag or curtain Animation. **3.** Crete a crowd stimulation **4.** Create a Hair simulation for a character animation **5.** Create a Fur simulation for a character animation					
6. Outcomes	**1.** Understand the principles of cloth dynamics and implement realistic cloth simulations for character animations, such as flags or curtains, mastering their movement and behavior in various scenarios. **2.** Develop crowd simulations, employing techniques to efficiently generate and control multiple characters within a scene, demonstrating proficiency in managing complex interactions and behaviors. **3.** Gain expertise in hair simulation, mastering the creation of natural-looking and dynamic hair movements for characters, enhancing realism and believability in animations. **4.** Acquire skills in fur simulation, applying advanced techniques to create lifelike fur dynamics for characters, enabling realistic rendering and movement in animated sequences. **5.** Demonstrate comprehensive knowledge and practical application of simulation techniques, fostering the ability to create immersive and convincing character animations through cloth, crowd, hair, and fur simulations.				

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	L(1)	S(3)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	L(1)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	L(1)	M(2)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	L(1)	M(2)	M(2)	S(3)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	1.2	2.2	2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

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DSE 4	Course Code82964C	FX & Advanced Compositing 3. CG & Live Action footage.	P	Credits: 4	Hours: 5
Objectives	**1.** Understand the process of integrating CG elements, such as vehicles, into live-action footage through camera tracking and compositing techniques. **2.** Analyze a specific effects shot that combines CG and live-action elements, and recreate it by applying appropriate integration methods. **3.** Implement the integration of CG creatures into live-action footage by blending them seamlessly using tracking and compositing tools. **4.** Develop skills in generating computer-generated environments and compositing a human character filmed in front of a green screen into the CG environment. **5.** Demonstrate proficiency in utilizing software tools and techniques to merge CG elements into live-action footage, achieving realistic and visually compelling results.				
Students are required to create the following: **1.** Integrate Cg Elements like Vehicles in the live action footage **2.** Camera track the footage and add Cg Elements. **3.** Recreate one specific effects shots, using both CG and live-action elements **4.** Integrate Cg Creature in the live action footage **5.** Create an environment using Computer graphics and composite a human character shooted in front of green screen					
Outcomes	**1.** Understanding Camera Tracking and Integration: Gain proficiency in tracking live-action footage to seamlessly integrate CG elements like vehicles or creatures, ensuring they appear natural within the scene. **2.** Compositing and Layering Skills: Learn techniques for combining live-action footage with computer-generated imagery, focusing on proper layering, lighting, and shadow integration for a cohesive final image. **3.** Special Effects Coordination: Develop expertise in recreating specific effect shots by coordinating CG and live-action elements, understanding the requirements for effective synchronization and realism. **4.** CG Creature Integration: Master the process of integrating CG creatures into live-action scenes, including considerations for lighting, perspective, and interaction with real-world elements for convincing visual effects. **5.** Environment Creation and Green Screen Compositing: Acquire skills in generating CG environments and seamlessly compositing live actors shot in front of green screens into these digital settings, ensuring realistic interaction and immersion within the created world.				

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	L(1)	S(3)	M(2)	M(2)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	L(1)	M(2)	S(3)	M(2)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	L(1)	M(2)	L(1)	M(2)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	L(1)	M(2)	M(2)	S(3)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	1.2	2.2	2	2.2	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	M(2)	M(2)	S(3)
W.AV	2.4	2	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

VI-Semester

Core	Course Code 82965A/ 82965B	Project/ Dissertation	PR/ D	Credits: 6	Hours: 12

Objectives	➢ Develop a comprehensive and functional Visual Effects Short Film that demonstrates mastery of chosen Specialization. ➢ Apply theoretical knowledge to address practical challenges within Visual Effects, showcasing problem-solving abilities. ➢ Demonstrate creativity, innovation in Visual effects Filmmaking that exhibit your Specialization in Visual Effects. ➢ Create a cohesive documentation outlining the development process, decision-making rationale, and technical aspects of the project. ➢ Present and defend the project's technical aspects and design choices through a well-structured dissertation or presentation.
Outcomes	➢ Develop a comprehensive and functional Visual Effects Short Film that demonstrates mastery of chosen Specialization. ➢ Apply theoretical knowledge to address practical challenges within Visual Effects, showcasing problem-solving abilities. ➢ Demonstrate creativity, innovation in Visual effects Filmmaking that exhibit your Specialization in Visual Effects. ➢ Create a cohesive documentation outlining the development process, decision-making rationale, and technical aspects of the project. ➢ Present and defend the project's technical aspects and design choices through a well-structured dissertation or presentation.

AIM OF THE PROJECT WORK

1. The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied.
2. Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.
3. The project work should be compulsorily done in the college only under the supervision of the department staff concerned.

VivaVoce

1. Viva-Voce will be conducted at the end of the year by both Internal (Respective Guides) and External Examiners, after duly verifying the Annexure Report available in the College, for a total of 100 marks at the last day of the practical session.
2. Out of 100 marks, 25 marks for CIA and 75 for CEE (50 evaluation of project report + 25 Viva Voce).

Project Report Format

PROJECT WORK

TITLE OF THE DISSERTATION

Bonafide Work Done by

STUDENT NAME

REG. NO.

GUIDE NAME

Dissertation submitted in partial fulfillment of the requirements for the award of

<Name of the Degree>

ICAT Design and Media College, Chennai.

College Logo

Signature of the Guide

Signature of the HOD

Submitted for the Viva-Voce Examination held on_____

Internal Examiner

External Examiner

Month – Year

University Logo

CONTENTS

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	L(1)
CO2	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)
CO3	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)
CO5	M(2)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)
W.AV	2.4	2.6	2.4	2	2.2	2.2	2.6	2.8	2.4	2

S–Strong (3), M-Medium (2), L-Low (1)

Mapping Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	S(3)	M(2)	S(3)	S(3)
CO3	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	S(3)	M(2)	S(3)	M(2)
CO5	M(2)	M(2)	S(3)	M(2)	S(3)
W.AV	2.4	2.4	2.6	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

UG Programme

Passing minimum

- A candidate shall be declared to have passed in each course if he/she secures not less than 40% marks in the End Semester Examinations and 40% marks in the Internal Assessment and not less than 40% in the aggregate, taking Continuous assessment and End Semester Examinations marks together.
- The passing minimum for CIA shall be 40% out of 25 marks (i.e.10 marks) in Theory/ Practical Examinations.
- The passing minimum for University Examinations shall be 40% out of 75 marks (i.e. 30 marks) for Theory /Practical papers.
- The candidates not obtain 40% in the Internal Assessment are permitted to improve their Internal Assessment marks in the subsequent semesters (2 chances will be given) by writing the CIA tests or by submitting assignments.
- Candidates, who have secured the pass marks in the End-Semester Examination and in the CIA but failed to secure the aggregate minimum pass mark (E.S.E + C I.A), are permitted to improve their Internal Assessment mark in the following semester and/or in University examinations.
- A candidate shall be declared to have passed in the Dissertation/Project report/Internship report if he/she gets not less than 40% marks in the Internal Assessment and End Semester Examinations and not less than 40% in the aggregate, taking Continuous assessment and End Semester Examinations marks together.
- A candidate who gets less than 40% in the Dissertation / Internship/ Project Report must resubmit the thesis. Such candidates need to take again the Viva-Voce on the resubmitted report/thesis.

18.2 Grading of the Courses

The following table gives the marks, Grade points, Letter Grades, and classifications meant

to indicate the overall academic performance of the candidate.

Conversion of Marks to Grade Points and Letter Grade (Performance in Course / Paper)

RANGE OF MARKS	GRADE POINTS	LETTER GRADE	DESCRIPTION
90 - 100	**9.0 – 10.0**	**O**	**Outstanding**
80 - 89	**8.0 – 8.9**	**D+**	**Excellent**
75 - 79	**7.5 – 7.9**	**D**	**Distinction**
70 - 74	**7.0 – 7.4**	**A+**	**Very Good**
60 - 69	**6.0 – 6.9**	**A**	**Good**
50 - 59	**5.0 – 5.9**	**B**	**Average**
40 - 49	**4.0 – 4.9**	**C**	**Satisfactory**
00 - 39	**0.0**	**U**	**Re-appear**
ABSENT	**0.0**	**AAA**	**ABSENT**

a) Successful candidates passing the examinations and earning a GPA between 9.0 and 10.0 and marks from 90 – 100 shall be declared to have Outstanding (O).

b) Successful candidates passing the examinations and earning GPA between 8.0 and 8.9 and marks from 80 - 89 shall be declared to have Excellent (D+).

c) Successful candidates passing the examinations and earning GPA between 7.5 – 7.9 and marks from 75 - 79 shall be declared to have Distinction (D).

d) Successful candidates passing the examinations and earning GPA between 7.0 – 7.4 and marks from 70 - 74 shall be declared to have Very Good (A+).

e) Successful candidates passing the examinations and earning GPA between 6.0 – 6.9 and marks from 60 - 69 shall be declared to have Good (A).

f) Successful candidates passing the examinations and earning GPA between 5.0 – 5.9 and marks from 50 - 59 shall be declared to have Average (B).

g) Successful candidates passing the examinations and earning GPA between 4.0 – 4.9

and marks from 40 - 49 shall be declared to have Satisfactory (C).

h) Candidates earning GPA between 0.0 and marks from 00 - 39 shall be declared to have Re-appear (U).

i) Absence from an examination shall not be taken as an attempt.

From the second semester onwards the total performance within a semester and continuous performance starting from the first semester are indicated respectively **by** Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA).

These two are calculated by the following formulate

GRADE POINT AVERAGE (GPA) = $\Sigma_i C_i G_i / \Sigma_i C_i$

GPA = Sum of the multiplication of grade points by the credits of the courses

Sum of the credits of the courses in a Semester

18.3 Classification of the final result

The final result of the candidate shall be based only on the CGPA earned by the candidate.

a) Successful candidates passing the examinations and earning CGPA between 9.5 and 10.0 shall be given Letter Grade (O+) and those who earned CGPA between 9.0 and 9.4 shall be given Letter Grade (O) and declared to have First Class –Exemplary*.

b) Successful candidates passing the examinations and earning CGPA between 7.5 and 7.9 shall be given Letter Grade (D), those who earned CGPA between 8.0 and 8.4 shall be given Letter Grade (D+) and those who earned CGPA between 8.5 and 8.9 shall be given Letter Grade (D++) and declared to have First Class with Distinction*.

c) Successful candidates passing the examinations and earning CGPA between 6.0 and 6.4 shall be given Letter Grade (A), those who earned CGPA between 6.5 and 6.9 shall be given Letter Grade (A+), and those who earned CGPA between 7.0 and 7.4 shall be given Letter Grade (A++) and declared to have First Class.

d) Successful candidates passing the examinations and earning CGPA between 5.0 and 5.4 shall be given Letter Grade (B) and those who earned CGPA between 5.5 and 5.9 shall be given Letter Grade (B+) and declared to have passed in the Second Class.

e) Successful candidates passing the examinations and earning CGPA between 4.0 and 4.4 shall be given Letter Grade (C) and those who earned CGPA between 4.5 and 4.9 shall be given Letter Grade (C+) and declared to have passed in the Third Class.

f) Absence from an examination shall not be taken as an attempt.

CGPA	Grade	Classification of Final Result
9.5 – 10.0 9.0 and above but below 9.5	**O+** **O**	First Class – Exemplary*
8.5 and above but below 9.0 8.0 and above but below 8.5 7.5 and above but below 8.0	**D++** **D+** **D**	First Class with Distinction*
7.0 and above but below 7.5 6.5 and above but below 7.0 6.0 and above but below 6.5	**A++** **A+** **A**	First Class
5.5 and above but below 6.0 5.0 and above but below 5.5	**B+** **B**	Second Class
4.5 and above but below 5.0 4.0 and above but below 4.5	**C+** **C**	Third Class
0.0 and above but below 4.0	**U**	Re-appear

Final Result

CUMULATIVE GRADE POINT AVERAGE (CGPA) = $\Sigma_n \Sigma_i C_{ni} G_{ni} / \Sigma_n \Sigma_i C_{ni}$

CGPA = Sum of the multiplication of grade points by the credits of the entire programme

Sum of the credits of the course for the entire Programme

Where '**Ci**' is the Credit earned for Course i in any semester; '**Gi**' is the Grade Point obtained by the student for Course i and 'n' refers to the semester in which such courses were credited.

CGPA (Cumulative Grade Point Average) = Average Grade Point of all the Courses passed starting from the first semester to the current semester.

Note: * The candidates who have passed in the first appearance and within the prescribed Semesters of the UG Programme (Major, Allied, and Elective courses alone) are eligible for this classification.