ROYAL GLOBAL UNIVERSITY
GUWAHATI

ROYAL SCHOOL OF COMMUNICATIONS AND MEDIA (RSCOM)

DEPARTMENT OF ANIMATION AND VISUAL EFFECTS

Learning Outcomes-based Curriculum Framework (LOCF) for Undergraduate Programme in B.Sc. Animation and Visual Effects

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ROYAL SCHOOL OF COMMUNICATIONS AND MEDIA (RSCOM)

DEPARTMENT OF ANIMATION AND VISUAL EFFECTS

UNDERGRADUATE CURRICULUM FRAMEWORK BASED ON LEARNING OUTCOME-BASE CURRICULUM FRAMEWORK

FOUR-YEAR
B.SC. ANIMATION AND VISUAL EFFECTS (HONS IN 2D/3D ANIMATION)
(2022 -2023)

Table of Contents –

1. **Preamble**

The Assam Royal Global University is upgrading its undergraduate programmes in the line of NEP, 2022. Media and Entertainment are the most emerging and fast-growing industries in India and the whole world is taking notice of the efficiency, skill, and talent available in the country in these fields.

NEP aims at making higher education, holistic and multidisciplinary education would aim to develop all capacities of human beings -intellectual, aesthetic, social, physical, emotional, and moral in an integrated manner. Such an education will help develop well-rounded individuals that possess. In other words, the curriculum will allow flexibility to students to take up creative subject-combinations.

The new curriculum of B.Sc. Animation and Visual Effects under The Assam Royal Global

University is in the line with NEP, 2022 – flexible, multi-disciplinary and holistic.

1.2 Introduction:

NEP, 2020 aims at a new and forward-looking Vision for India's Higher Education System. At the societal level, higher education must enable the development of an enlightened, socially conscious, knowledgeable, and skilled nation that can find and implement robust solutions to its own problems. Higher education must form the basis for knowledge creation and innovation thereby contributing to a growing national economy. The purpose of quality higher education is, therefore, more than the creation of greater opportunities for individual employment. It represents the key to more vibrant, socially engaged, cooperative communities and a happier, cohesive, cultured, productive, innovative, progressive, and prosperous nation.

This policy envisions a complete overhaul and re-energising of the higher education system to overcome these challenges and thereby deliver high-quality higher education, with equity and inclusion—moving towards a more multidisciplinary undergraduate education, revamping curriculum, pedagogy, assessment, and student support for enhanced student experiences etc. A university will mean a multidisciplinary institution of higher learning that offers undergraduate and graduate programmes, with high quality teaching, research, and community engagement.With new concepts and progress, the detailed syllabus of B.Sc. Animation and Visual Has been designed to be implemented from the academic session 2022-2025.

1.2 Approach to Curriculum Planning

The fundamental premise underlying the learning outcomes-based approach to curriculum planning and development is that higher education qualifications such as a bachelor's degree (Specialization) programmes are earned and awarded based on (a) demonstrated achievement of outcomes (expressed in terms of knowledge, understanding, skills, attitudes, and values) and (b) academic standards expected of graduates of a programme of study.

The expected learning outcomes are used as reference points that would help Formulate graduate attributes, qualification descriptors, programme learning outcomes and course learning outcomes which in turn will help in curriculum planning and development, and in the design, delivery, and review of academic programmes.

Learning outcomes-based frameworks in any subject must specify what graduates completing a particular programme of study are (a) expected to know, (b) understand and (c) be able to implement the knowledge at the end of their programme. To this extent, NEP in Animation and Visual Effects is committed to allowing for flexibility and innovation in (i) programme design and syllabi development by higher education institutions (HEIs), (ii) teaching-learning process, (iii) assessment of student learning levels, and (iv) periodic programme review within institutional parameters as well as NEP guidelines, (v) generating framework(s) of agreed expected graduate attributes, qualification descriptors, programme learning outcomes and course learning outcomes.

The key outcomes that underpin curriculum planning and development at the undergraduate level include Graduate Attributes, Qualification Descriptors, Programme Learning Outcomes, and Course Learning Outcomes.

The NEP for undergraduate education is based on specific learning outcomes and academic standards expected to be attained by graduates of a programme of study. However, an outcome-based approach identifies moves way from the emphasis on what is to be taught to focus on what is learnt by way of demonstrable outcomes. This approach provides greater flexibility to the teachers to develop—and the students to accept and adopt—different learning and teaching pedagogy in an interactive and participatory ecosystem. The idea is to integrate social needs and teaching practices in a manner that is responsive to the need of the community. HEIs, on their turn, shall address to the situations of their students by identifying relevant and common outcomes and by developing such outcomes that match the specific needs of the students and also expand their outlook and values.

1.2.1 Nature and Extent of bachelor's degree Programme in Animation and Visual Effects

A bachelor's degree in Animation and Visual Effects (Specialization with Research) is a 4 years degree course which is divided into 8 semesters as under.

Sl. No.	Type of Award	Stage of Exit	Mandatory Credits to be secured for the Award
1	Certificate in the Discipline	After successful completion of 1st Year	48
2	Diploma in the Discipline	After successful completion of 1st and 2nd Years	96
3	B.Sc. Animation and Visual Effects	After successful completion of 1st, 2nd, and 3rd Years	148
4	B.Sc. (Specialization with Research) in Animation and Visual Effects	After successful completion of 1st, 2nd, 3rd and 4th Years	180

A student pursuing 4 years undergraduate programme with research in a specific discipline shall be awarded an appropriate Degree in that discipline on completion of 8th Semester if he/she secures 180 Credits. Similarly, for certificate, diploma and degree, a student needs to fulfil the associated credits. An illustration of credits requirements in relation to the type of award is illustrated below:

Bachelor's Degree (Specialization with Research) is a well-recognized, structured, and specialized graduate level qualification in tertiary, collegiate education. The contents of this degree are determined in terms of knowledge, understanding, qualification, skills, and values that a student intends to acquire to look for professional avenues or move to higher education at the postgraduate level.

Bachelor's Degree (Specialization with Research) programmes attract entrants from the secondary level or equivalent, often with subject knowledge that may or may not be directly relevant to the field of study/profession. Thus, B.Sc. (Specialization with Research) Course in Animation and Visual Effects aims to equip students to qualify for joining a profession or to provide development opportunities in particular employment settings. Graduates are enabled to enter a variety of jobs or to continue academic study at a higher level.

1.2.2 Aims of bachelor's degree (Specialization with Research) Programme in Animation and Visual Effects:

The B.Sc. Animation and Visual Effects programme is inclusive and broad-based even as it carries imprints of specialized areas of study. In this programme, student research is given importance to, particularly in the third year of the B.Sc. Animation and Visual Effects programme. The objectives of

the LOCF syllabus revisit traditional expectations of teaching and learning Animation by centre-staging outcomes that are demonstrable through the following key attributes: understanding, use, communication, expansion, and application of subject knowledge with a clear awareness and understanding of one's location in the regional, national, and global environment.

The LOCF syllabus of B.Sc. Animation and Visual Effects programme highlights the following: (i) To impart the basic knowledge of Animation and Visual Effect theories, principles of Animation, (ii) To develop the learners providing skill-based and research-based knowledge and competent and efficient in the field of Animation and Visual Effects (iii) To provide and adapt curricula that prepare our graduates for employment and further study as Animator or Visual Effect Artist (iv) To provide programmers that allow the students to choose from a wide range of Animation and Visual Effects (v) demonstration of professional awareness and problem solving skills, (vi) demonstration knowledge of digital software; (vi) develop the ability to recognize the professional and social utility of the subject, and (vi) in the process understand, appreciate and imbibe values of life.

The overall objectives of the Learning Outcomes-based Curriculum Framework (LOCF)for B.Sc. Animation and Visual Effects are—

- **Prospects of the Curriculum:** Formulating graduate attributes, qualification descriptors, programme learning outcomes, and course learning outcomes that are expected to be demonstrated by the holder of the degree of B.Sc. Animation and Visual Effects.

- **Core Values**: Enabling prospective students, parents, employers, etc. to understand the nature and level of learning outcomes (knowledge, skills, attitudes, and human and literary values) or attributes suitable to the B.Sc. Animation and Visual Effects programme.

- **Bridge to the World**: Providing a framework to see the subject as a bridge to the world in a way that while recognizing the different conditions in pluralistic society, the students also are aware of a core of shared values such as (i) commitment to the subject to understand the world at large, (ii) development of each person's unique potential, (iii) respect for others and their rights, (iv) social and civic responsibility, participation in democratic processes; social justice and cultural diversity, and (v) concern for the natural and cultural environment

- **Assimilation of Ability, Balance, Harmony and Inclusiveness:** Identify and define such aspects or attributes of Animation that a B.Sc. Animation and Visual Effects graduate should be able to demonstrate on successful completion of the programme.

- **Frame for National Standards:** Providing a frame of reference for maintaining national standards with international compatibility of learning outcomes of Animation and academic standards to ensure global competitiveness, and to facilitate graduate mobility

- **Pliability:** Formulating outcomes that are responsive to social and technological changes in a way that the pedagogy will meet the student's needs arising from the changes. The LOCF approach encourages effective use of new technologies as tools for learning and provide a

balance between what is common to the education of all students and the kind of flexibility and openness required for education

- **Pedagogy:** Provide higher education institutions an important point of reference for designing teaching-learning strategies, assessing student learning levels, and periodic review of programmes and academic standards for B.Sc. Animation and Visual Effects with a shift from domain knowledge to processes of realising the outcomes

- **Development:** The specific objectives of the B.Sc. Animation and Visual Effects programme are to develop the student's ability to demonstrate the following outcomes:

  1. Disciplinary Knowledge and understanding

  2. Communication Skills

  3. Creative Thinking

  4. Analytical Reasoning

  5. Problem Solving

  6. Information/digital literacy

  7. Project-Related Skills

  8. Cooperation/Teamwork

  9. Moral and Ethical Value

  10. Life-long learning (Self-Directing Learning)

The details are explained below:

Graduate Attributes

GA 1: Disciplinary Knowledge and Understanding:

Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part. It will provide basic knowledge of Animation and Visual Effects use of creativity in CGI environment.

GA 2: Communication Skills:

Ability to demonstrate ideas express thoughts effectively both orally and in writing.

GA 3: Creative thinking:

A student will be able to draw connections between the knowledge gained and the creative task to be executed. Interpret the observations and sketch it into reality.

GA 4: Analytical Reasoning

They should be able to examine and solve problems effectively. A Systematic and methodical step-by- step approach to recognize the hurdle arising in the process of task execution.

GA 5: Problem Solving:

The program focuses on good research and ability to identify solution-based thinking, application of theoretical concepts to real life case studies on Animation enabling students to develop problem solving skills.

GA 6: Information/digital literacy

Demonstrate ability to use computers for learning, design, evaluate, and utilise relevant information using appropriate software for analysis of data and creation of end product.

GA 7: Project-Related Skills

The students are engaged with their faculty on various projects of current relevance and critical outcome. They work on live projects and collect data and conceptualize application ideas.

GA 8: Cooperation/Teamwork

Capable of participating in project to working effectively and develop innovative end product in diverse teams both classroom and animation industry.

GA 9: Moral and Ethical Value

Capable of conducting work with ethics and precision such as fabrication, falsification or misrepresentation of data or committing plagiarism, and appreciating environmental and sustainability issues.

GA 10: Life-long learning

Capable of self-paced and self-directed learning aimed at personal development, cultural objectives, adapting to changing trends and demands of workplace through knowledge/skill development/re-skilling.

1.4 Qualification Descriptors for a Bachelor's Degree programme in Animation and Visual Effects

The qualification descriptors for the Bachelor's Degree programme in animation will focus on the following five learning attributes: understanding, use, communication, expansion, and application of subject knowledge with a clear understanding of one's location. This also involves awareness on the differences that exist among students based on class, caste, gender,

community, region, etc. in order that they can transcend these differences with transparency of purpose and thought. The key qualification descriptors for a Bachelor's Degree programme in Animation and visual effects may include the following:

Demonstrate

i. A systematic or coherent understanding of the academic field of Multimedia and identify connection between awareness gained and its relation Animation and Visual Effects

ii. The ability to understand the role of Animation in a changing world from the disciplinary perspective as well as in relation to the professional and everyday use of the Visual communication such as symbol, icon and index etc. The aspect of disciplinary attribute is covered by the ability of students to creative ideas with attention to themes.

iii. The ability to brainstorm/mind mapping ideas and produce themes with clarity.

iv. The ability to share results of academic and disciplinary learning through tutorial, dissertations, projects and portfolio, etc. on different platforms like the classroom, Library, the media and the internet

- *Communicate* ideas, opinions, and perception—both creatively and related to life—in order to expand the knowledge of the subject as it moves from the classroom environment to life and life-worlds in which the students of multimedia exist.
- *Recognize* the scope of Animation studies in terms of career and employment opportunities, engagement in Animation Industry, production house, animation studios, media, and other allied fields
- *Apply* subject-specific skills in Multimedia to foster a larger sense of ethical and moral responsibility among fellow humans in order to see, respect, and transcend differences among various life-forms. The programme will strengthen the student's creativity and imaginary concepts to enable them to identify, analyse and evaluate and find sustainable solutions and/or answers to keys issues in the various project and around in the world—thematic, conceptual, professional, procedural.

PO-1: Disciplinary knowledge of Animation and visual Effect:

Capable to attain knowledge and understanding of the concept of animation, graphic clarity, design principles, performance principles, and theories involved in the physics of animation in all aspects of drawing.

PO-2: Communication skills

Ability to convey messages through verbal, non-verbal communication and in writing

PO-3: Creative thinking:

The students will demonstrate the creative task based on the observation and sketch it into reality.

PO-5: Analytical Reasoning:

The students will examine and illustrate the selective area where the problems need to be sorted in the project with research & knowledge.

PO-6: Problem Solving:

The students attain ability to quickly identify the problem and applying critical thinking skills and problem-solving analysis in all dimensions of development and production.

PO-7: Project development Techniques:

The student will outline and examine ascertain relevant source to find out substantive explanation and work on conceptualised Media related projects.

PO-8: Team work:

Ability to participate, contribute and provide constructive ideas and successfully complete projects within stipulated time.

PO-9: Moral and Ethical Value

Capable of conducting work with ethics and precision such as fabrication, falsification or misrepresentation of data or committing plagiarism, and appreciating environmental and sustainability issues.

PO-10: Life-long learning

Ability to retain and build on creative skills related to English transfer such skills to other domains of one's life and work and pave way for life-long learning.

1.6 B.Sc. Animation and Visual Effects Programme Specific Outcomes:

PSO 1: Integration of the concepts, principles, and theories involved in the physics of animation in all aspects of drawing.

PSO 2: Creating 2D and 3D characters and environments that reflect the integration of graphic clarity, design principles, performance principles, and theoretical constructs.

PSO 3: Applying critical thinking skills and problem-solving strategies in all dimensions of development and production.

PSO 4: Ability to demonstrate communicative competence, interpersonal skills and creative acumen through effective classroom practices like group discussions, project and Assignment.

1.7 Teaching Learning Process

Teaching and learning in this programme involves classroom lectures as well as tutorial and remedial classes.

Tutorial classes: Tutorials allow closer interaction between students and teacher as each student gets individual attention. The tutorials are conducted for students who are unable to achieve average grades in their weekly assessments. Tutorials are divided into three categories, viz. discussion-based tutorials (focusing on deeper exploration of course content through discussions and debates), problem-solving tutorials (focusing on problem solving processes and quantitative reasoning), and Q&A tutorials (students ask questions about course content and assignments and consolidate their learning in the guiding presence of the tutor).

Remedial classes: The remedial classes are conducted for students who achieve average and above average grades in their weekly assessments. The focus is laid to equip the students to perform better in the exams/assessments. The students are divided into small groups to provide dedicated learning support. Tutors are assigned to provide extra time and resources to help them understand concepts with advanced nuances. Small groups allow tutors to address their specific needs and monitor them. Following methods are adopted for tutorial and remedial classes:

- Written assignments and projects submitted by students
- Project-based learning
- Group discussions
- Home assignments
- Class tests, quizzes, debates organised in the department
- Seminars and conferences
- Extra-curricular activities like cultural activities, community outreach programmes etc.
- Field trip, excursions, study tour, interacting with eminent authors, etc.

1.8   Assessment Methods

	Component of Evaluation	Marks	Frequency	Code	Weightage (%)
A	**Continuous Evaluation**				
i	Analysis/Class test	Combination of any three from (i) to (v) with 5 marks each	1-3	C	25%
ii	Home Assignment		1-3	H	
iii	Project		1	P	
iv	Seminar		1-2	S	
v	Viva-Voce/Presentation		1-2	V	
vi	MSE	MSE shall be of 10 marks	1-3	Q/CT	
vii	Attendance	Attendance shall be of 5 marks	100%	A	5%
B	Semester End Examination		1	SEE	70%
	Project				**100%**

Internal assessment is based on – Mid-semester Examination, Class test, Assignment, Project, Viva-voce, attendance of the student, seminar, group discussion, field work etc.

PROGRAME STRUCTURE							
RSCOM **(B. Sc.in Animation and Visual Effects)**							
1st Semester							
Sl. No.	Subject Code	Names of subjects	L	T	P	C	TCP
Core Papers (C)							
1	AVE092C101	History of Animation and Multimedia	4	0	0	4	4
2	AVE092C112	Fundamentals of Drawing for Animation	1	0	6	4	7
3	AVE092C113	Acting for Animation	1	0	6	4	7
Skill Enhancement Course (SEC)							
4	AVE092S111	Characters & Illustration	0	0	4	2	4
Value Added Course (VAC)							
5	AVE092V111	Select for the basket	0	0	4	2	4
Ability Enhancement Compulsory Course (AECC)							

6	CEN982A101	Communicative English – I	1	0	0	1	1
7	BHS982A102	Behavioural Science-I	1	0	0	1	1
Generic Elective (GE)							
8	AVE092G111	Visualization Techniques (compulsory)	1	0	4	3	3
9	AVE092G112	Bio-Mechanics of Animation (open)	1	0	4	3	3
		Total -				**24**	

2nd Semester							
Sl. No.	**Subject Code**	**Names of subjects**	**L**	**T**	**P**	**C**	**TCP**
Core Papers (C)							
1	AVE092C211	Introduction to Cinematography	1	0	6	4	7
2	AVE092C212	Concept Art and Digital Painting	1	0	6	4	7
3	AVE092C213	3D Modelling and Texturing	0	1	6	4	7
Skill Enhancement Course (SEC)							
	AVE092S211	Graphic Design	1	0	2	2	3
Value Added Course (VAC)							
	AVE092V211	Select any from the basket	0	0	4	2	4
Ability Enhancement Compulsory Course (AECC)							
4	CEN982A201	Communicative English – II	1	0	0	1	1
5	BHS982A202	Behavioural Science-II	1	0	0	1	1
Elective: Generic (GE)							
6	AVE092G211	Art of Storyboarding (compulsory)	1	0	4	3	3
7	AVE092G212	Special effects (elemental magic animation) (open)	1	0	4	3	3
		Total -				**24**	

3rd Semester							
Sl. No.	**Subject Code**	**Names of subjects**	**L**	**T**	**P**	**C**	**TCP**
Core Papers (C)							
1	AVE092C311	2D Animation	1	0	6	4	7
2	AVE092C312	3D Lighting and Rendering	0	1	6	4	7
Discipline Specific Elective (DSE)							
3	AVE092D313	Introduction to Visual Effects	0	0	6	3	6
Skill Enhancement Course (SEC)							
	AVE092S311	Animatic	1	0	2	2	4
Value Added Course (VAC)							
	AVE092V311	Will select one course from a basket of courses	0	0	4	2	4
Ability Enhancement Compulsory Course (AECC)							
4	CEN982A301	Communicative English – III	1	0	0	1	1
5	BHS982A302	Behavioural Science- III	1	0	0	1	1
Elective: Generic (GE)							
6	AVE092G311	Nuke (compulsory)	1	0	4	3	3
7	AVE092G312	Live Action (open)	1	0	4	3	3

		Internship					
8	AVE092I312	4 weeks internship after 2nd sem exam.	0	0	0	4	4
		Total-				**24**	

4th Semester							
Sl. No.	Subject Code	Names of subjects	L	T	P	C	TCP
Core Papers:							
1	AVE092C411	2D Animation FX and Compositing	0	0	8	4	8
2	AVE092C412	3D Animation Techniques and Dynamics	0	1	7	4	8
Skill Enhancement Course (SEC)							
	AVE092S411	Clay modelling	0	0	4	2	4
Value Added Course (VAC)							
	AVE092V411	Select any from the basket	0	0	4	2	4
Discipline Specific Elective (DSE)							
	AVE092D411	DSE-2 Advanced Visual Effects Techniques	0	0	8	4	8
Ability Enhancement Compulsory Course (AECC)							
4	CEN982A401	Comm. Eng– IV	1	0	0	1	1
Elective: Generic (GE)							
6	AVE092G411	Motion Graphics (compulsory)	1	1	2	3	3
7	AVE092G412	Info-graphics(open)	1	1	2	3	3
		Total -				**24**	

5th Semester							
Sl. No.	Subject Code	Names of subjects	L	T	P	C	TCP
Core Papers:							
1	AVE092C511	Visual magic	0	1	6	4	7
2	AVE092C512	Introduction to Architecture Modelling	0	1	6	4	7
Discipline Specific Elective (DSE)							
	AVE092D511	DSE-1 Specialization 2d	0	1	6	4	7
	AVE092D512	DSE-2 Specialization 3d	0	1	6	4	7
Value Added Course (VAC)							
	AVE092V511	Select any from the basket	0	0	4	2	4
Ability Enhancement Compulsory Course (AECC)							
4	CEN982A501	Comm. Eng– V	1	0	0	1	1
Internship							
6	AVE092I511	Internship (6 weeks)	0	0	8	4	4
		Total -				**23**	

6th Semester							
Sl. No.	Subject Code	Names of subjects	L	T	P	C	TCP
Core Papers:							
1	AVE092C511	Introduction Substance Painter	0	1	6	4	7
2	AVE092C512	Stop Motion	0	1	6	4	7
Discipline Specific Elective (DSE)							
	AVE092D511	DSE-1 Post production for 2d Animation	1	0	6	4	7
	AVE092D512	DSE-2 Post production 3d Animation	0	1	6	4	7
	AVE092D513	DSE-3 Camera Projection and Integration	0	1	6	4	7
Skill Enhancement Course (SEC)							
	AVE092S513	Select any from the basket	0	0	4	2	4
Value Added Course (VAC)							
	AVE092V511	Select any from the basket	0	0	4	2	4
Ability Enhancement Compulsory Course (AECC)							
4	CEN982A501	Comm. Eng– V	1	0	0	1	1
		Total -				**25**	

7th Semester							
Sl. No.	Subject Code	Names of subjects	L	T	P	C	TCP
Core (C) Papers							
1	JMC092C701	C15: Research Methodology-I	4	0	0	4	4
Discipline Specific Elective (DSE)							
2	FTP092D701	DSE8: Film Theories	3	1	0	4	4
Minor Research Project							
3	JMC092C721	Minor Research Project	0	0	16	8	16
		Total -				**16**	

8th Semester							
Sl. No.	Subject Code	Names of subjects	L	T	P	C	TCP
Core (C) Papers							
1	JMC092C801	C16: Research Methodology-II	4	0	0	4	4
Major Research Project							
2	JMC092C821	Major Research Project (Dissertation)	0	0	24	12	24

			Total -			16	
Conferring the Degree with Research in Bachelor of Science (Hons) in Animation and Visual effects, BS.c. Research (animation)				**57 (180)**			

Core Papers (C)
SYLLABUS   **(1ˢᵗSEMESTER)**
Paper: History of Animation and Multimedia **Subject Code:** AVE092C101   **L-T-P-C:**4-0-0-4 **Credit Units:**4

Develop new interpretations of contemporary ideas of animation based on an understanding of history of animation.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy**
CO 1	**Classify** the characteristic features of the different types of structures of animation	**BT 1**
CO 2	**Identify** the composition associated with the rise and evolution of animation	**BT 3**

Detailed Syllabus:

Modules	**Name**	**Course Contents**	**Periods**
1	History of Animation	Influence of predecessors,1888–1909: Earliest animations on film, 1910s: From original artists to "assembly-line" production studios,1920s: Absolute film, synchronized sound and the rise of Disney,1930s: Color, depth, cartoon superstars and Snow White,1950s: Shift from classic theatrical cartoons to limited animation in TV series for children,2000s–2010s: traditional techniques overshadowed by computer animation.	10

2	History of Mean Methods of Animation	Magic Lanterns and the zoetrope, Puppet Animation, Animated Series, Movies, History of comic and manga, Celluloid Animation, 2D Animation, 3D Animation, Motion Graphics, Stop Motion, cut-out animation.	10
3	History of Anime	Origins of Anime (early 1900-1922), Pre-war productions (1923-1939), During the Second World War, Post-war environment, Toei Animation and Mushi Production	10
4	Case Studies	Study about Fantasmagoria; Art Books of Animated Movies; The Art of Aaron Blaise (Animal Study)	10
Total			**40**

References:
- Blaise, Aaron. (2021). *The Art of Aaron Blaise*. Vol.1. ISBN 1737328801.
- Eugene, Emile. &Courted, Jean Louis. (1908).*Fantasmagorie.* Movie.
- The Art of the Disney Golden Book by Charles Solomon (2014)
- The Art of Assassin's Creed Odyssey by Kate Lewis (2018)
- Julius, J. & Malone, M. (2016). *The Art Book of Moana.* ISBN 978-1-4521-5536-4 (hc). California.

Core Papers (C)	
Paper: Fundamentals of Drawing for Animation	**Subject Code:** AVE092C112
L-T-P-C:1-0-6-4	**Credit Units:**4

To equip students with knowledge of the foundational concepts of the art that will enable them to understand, draw different art style, study human and animal anatomy.

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Study** the basics Skeleton, Muscle, Proportion of animal and human anatomy to portray the Art in the most compelling way.	**BT 1**
CO 2	**Draw** different of shapes and forms, styles, and traditions through familiarization with a wide range of design, styles, etc.	**BT 3**
CO 3	**Apply** the knowledge of art in their attempts to draw prospective drawing and human figures.	**BT 3**
CO 4	**Develop** new interpretations of contemporary ideas of design based on an understanding of Principles of Designs and Elements of Shape.	

		BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Fundamentals of Animation	Principles of Designs and Elements of Shape, Shape Modification, Stick Figures, Gesture Drawing's Depth Study, Colour Theory; Doubt Clearing Assignments	20
2	Human and Animal's Anatomy	Studies of Skeleton, Muscle, Proportion; Studies of Animal Skeleton, Muscles, Proportion; Self Hand and Feet Drawing; Animal Family Study, Head and Body Turn Around; Understanding the Form and Volume; Doubt Clearing Assignments	20
3	Still life Using Perspectives	Exterior, Interior, Angle Design by Applying Linear Perspective; Still life Drawing and Composition, Pencil, Black and White and Colour Rendering; Doubt Clearing Assignments	20
4	Character Designing Using Basic Shapes	Introduction to Character Drawing with Basic Shape, Expression Sheet, Character Style Study, Pose Board, Character Concept Art, Manual, Character Turn Around, Character Personality	20
Total			**80**

References:
- Drawing and Anatomy by Victor Perard (1928)
- Illusion of Life by Frank Thomas and Olli Johnston (1981)
- Ernest R. Norling. Perspective Made Easy (1939)

Core Papers (C)	
Paper: Acting for Animation	**Subject Code:** AVE092C113
L-T-P-C:1-0-6-4	**Credit Units:**4

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**

CO 1	**Study** the basics of acting to interpret characters' feelings and motives in order to portray the characters in the most compelling way	BT 1
CO 2	**Apply** and use of key concepts of acting to analyse, and evaluate the acting skills	BT 3
CO 3	**Demonstrate** the ability to act	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Introduction to Acting	Basics to Acting, Acting as Primary Expression, History of Acting, Generic Classifications of Acting, Types and Genres of Acting	20
2	Body in Acting	Significance of Body in Acting, Human Body and Postures, Animal Body and Postures, Inorganic Body and Postures, Body and Action	20
3	Camera Acting	Acting and Emotion, Subtle Acting and Performances, Conveying Subtext, Changing Emotions, Pantomime, Animating to Dialog, creating strong poses and Key frames, Developing Well Rounded Characters, Straight Ahead Vs Pose to Animation, Breaking Down a Shot for maximum impact, Acting and Animation Exercises	20
4	Technique	Stanislavski's Method, The Chekhov Acting Technique, Method Acting, Meisner Acting Technique, and Practical Aesthetics Acting Technique	20
Total			**80**

Skill Enhancement Course-1 (SEC)	
Paper: Characters & Illustration	**Subject Code:** AVE092S112
L-T-P-C:0-0-4-2	**Credit Units:**2

Course Outcomes:

On successful completion of the course the students will be able to:

SI No	Course Outcome	Blooms Taxonomy
CO 1	**Visualize** a character's traits, personality, backstory according to the story	BT 2
CO 2	**Illustrate** different styles through which student can sketch different themes or character design props.	BT 3
CO 3	**Analyze** themes of different conceptual art of animation	BT 4

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Art Fundamentals	The Basic Structure of Art and Drawing, Breaking Down the Structure, Skill vs. Emotion in Drawing The Importance of Story in Drawing Drawing Art Studies vs Drawing Art Creation Drawing Imaginative Art	15
2	Character forms and proportion	Studies of Skeleton, Muscle, Proportion; Studies of Animal Skeleton, Muscles, Proportion; Self Hand and Feet Drawing; Animal Family Study, Head and Body Turn Around; Understanding the Form and Volume; Doubt Clearing Assignments	15
3	Hair cloth Dynamics	Fundamental of drawing hair, Basic Components of drawing hair, drawing basic hair shapes, drawing clothing and cloth dynamics	15
4	Character post-production	Creating Clean Lines and Line Art for Finishing Drawings Creating Rough Clean Lines and Line Art for Finishing Drawings Character Page Composition when Drawing Characters	15
Total			**60**

Generic Elective -1 (GE)	
Paper: Visualization Techniques	**Subject Code:** AVE092G111
L-T-P-C:0-0-6-3	**Credit Units:** 3

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**

CO 1	**Visualize** the setting and motives of the story in order to portray the shot in the most compelling way	BT 2
CO 2	**To Break down** the concepts and evaluate the drawing skills	BT 3
CO 3	**Demonstrate** the visualization methods to create mental images and help student visualize different scenarios, situations, or ideas	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Environment Design	Drawing Art Creation Drawing Imaginative environment Story board	15
2	Character Development	Form and Volume Proportion; Head and Body Turn Around; Doubt Clearing Assignments	15
3	Hair cloth Dynamics	Fundamental of drawing hair, Basic Components of drawing hair, drawing basic hair shapes, drawing clothing and cloth dynamics	15
4	Character post-production	Creating Clean Lines and Line Art for Finishing Drawings Creating Rough Clean Lines and Line Art for Finishing Drawings Character Page Composition when Drawing Characters	15
Total			**60**

Generic Elective -2 (GE)	
Paper: Bio-Mechanics of Animation	**Subject Code:** AVE092G112
L-T-P-C:0-0-6-3	**Credit Units:**3

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**

CO 1	**Observe** the Bio- mechanics or the movement of the object to create an illusion of movement in a sequence	**BT 2**
CO 2	**Draw** range of keyframes to create illusion in a sequence	**BT 3**
CO 3	**Apply** the knowledge of shapes and forms to retain the mass of object to create smooth sequence.	**BT 3**
CO 4	**Develop** new interpretations of contemporary ideas of movement based on observation from surrounding	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Bio-Mechanics/Organic Animation (classical animation)	Head Turn, ManWalk,Man Jump (all view),Run Cycle,Walk-Run-Stop, Character balance,Lip-syncing with sound	16
2	Bio-Mechanics/Organic Animation (classical animation)	Animation,RollingCoin,BouncingBall,Pendulum,Flag	16
Total			**32**

References:

- Williams,Richard. (2001).*The Animator's Survival Kit*

Core Papers (C)	
SYLLABUS **(2ndSEMESTER)**	
Paper: Introduction to Cinematography	**Subject Code:** AVE092C211
L-T-P-C:1-0-6-4	**Credit Units:** 4

Course Outcomes

On successful completion of the course the students will be able to:

SI No	Course Outcome	Blooms Taxonomy Level
CO 1	**Identify** film noir through the visual style and aesthetic of a film, which can be achieved through a combination of elements such as cinematography, lighting, set design and color grading.	BT 1
CO 2	**Factor** that contributes to the way in which a live action scene is captured on film or digital media are shot composition, and camera handling, and they all contribute to the overall interpretation of the scene.	BT 2
CO 3	**Apply** the knowledge of cinematography to **compose** live action.	BT 3
CO 4	**Develop** new interpretations of contemporary ideas of Cinematography based on an understanding of cinema production.	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Camera Handling	Choosing a camera : Digital vs Film	DSLR vs Cinema Camera, resolution, Frame rate, Choosing a lens, memory card (SD/CF) , Latitude, Exposure, how dose frame rate affect exposure, ISO, Shutter speed, Aperture (F-stop and iris) Aperture chart, Using Neutral Density (ND) Filters to Cut Down Light, Reading Exposure with Camera: Understanding the Histogram and Light Meters, Putting It All Together: How to Exposure Properly, Shooting with Colour Profiles and LUTs, Shooting in RAW Mode for Best Color rendition, Practice Shooting in two point Lighting Scenarios	20
2	Composition	Composition, Types of shot, Depth of field, Compositing Better Shots for Narrative and Commercial Video, Compositing Better Shots for Documentaries, Equipment Suggestions: Tripods and Movement, Why Should You Add Movement to Your Shots? Better Handheld Shooting, Dolly, Stabilizing Your Shots with a Steadicam System, Stabilizing Your Shots with a Steadicam, Shooting with a Jib, Shooting with a Drone, Lighting, Understanding Colour Temperature, Light Colour Temperature Chart, White Balance, White Balance Symbol Chart, Powering Lights(Wattage, amps,	20

		volts),Lighting Demonstration, 3-Point Lighting, Making Eyes blink with Lighting, Shooting with Natural Light	
3	Video Editing	Understanding interface and editing concept, Transition and Audio integration, Advanced video editing, Effects, Colour Grading, Applying a LUT	20
4	Audio Production	Interface and tools, Recording, dubbing, tracklaying Audio editing, audio mixing, Restoring audio. Foley Sound, effects	20
	Total		**80**

References:

- Brown, Blain; *Cinematography: Theory and Practice, Second Edition: Image Making for Cinematographers and Directors;* Focal Press, 2011.
- Katz, D Steven; *Film Directing Shot by Shot: Visualizing from Concept to Screen*; Michael Wiese, 1991.

Core Papers (C)	
Paper: Concept Art and Digital Painting	**Subject Code:** AVE092C212
L-T-P-C:1-0-6-4	**Credit Units:**4

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy**
CO 1	**Reproduce** rough art style, character's traits, personality, props according to the script and use that information as a guide for creating the visuals	**BT 1**
CO 2	**Visualize** different styles sketch different themes, cartoons, design, props and environment.	**BT 2**
CO 3	**Explore** themes of different conceptual art and design	**BT 3**
CO 4	**Construct** conceptual art and design using various tricks and technique	**BT 3**

Detailed Syllabus:

Modules	**Name**	**Course Contents**	**Periods**
1	Workspace and	Introduction to User Interfaces, Basic Setting, Text,	

	Tools	Layer Management, Tools	20
2	Masking and Filters	Channel masking, Layer masking (Alpha), Filters,	20
3	Digital Painting and Matte Painting	Still life Painting, How light falls on form, Dynamic light and shadow, Photobasing, digital painting technique and tips, Illustration, Manipulation,	20
4	Master Layout Design and Background	Master Layout Design, Rough Final layout(beats), Layout and Colouring	20
	Total		**80**

References:

- Bold Visions The Digital Painting Bible For Fantasy and Science-Fiction Artists *by Gary Tonge*, ISBN 978-1600610202, IMPACT Books (7 August 2008)

Core Papers (C)	
Paper: Introduction to 3D Modelling and Texturing	**Subject Code:** AVE092C213
L-T-P-C:0-1-6-4	**Credit Units:**4

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Define** the object's shape, texture, and appearance through the use of polygons, curves, and other geometric primitives.	**BT 1**
CO 2	**Construct** 3D model to view from any angle and use for a variety of purposes, such as visualization, animation, prototyping, etc.	**BT 3**
CO 3	**Apply** the knowledge of shapes and forms to model a character, object and environment.	**BT 3**
CO 4	**Develop** new interpretations of contemporary ideas of 3d texturing	**BT 3**

Detailed Syllabus:

Modules	**Name**	**Course Contents**	**Periods**

1	Modelling	Introduction; Hardware/Software; Pipeline Demonstration; 3d Interface; Low Poly Modelling;; Export/Import; Collision	20
2	Surfacing	High Poly Modelling; Normal Bake; Masking Height; Bake Other Maps; Substance Painter Materials; Export; Photoshop	20
3	Modularity	Modularity: Wall Set – Model; Modularity: Wall Set – Unwrap; Modularity: Wall Set - Height & Normal; Modularity: Wall Set - Materials, Modularity: Wall Set - Export & Import to Unity; Modularity: Wall Set - Unity Prefabs; Modularity: Wall Set - Level Layout	20
4	Terrain	Foliage: Palm Tree (model/unwrap), Foliage: Palm Tree, Terrain: Sculpting Height, Terrain: Adding Textures, Terrain: Adding Trees & Decorations; Terrain: Polish	20
	Total		**80**

References:

- Vaughan, William. (2011). *Digital Modeling.* Edition 1,ISBN 978-0321700896,New Riders Pub

- Legaspi, Chris. (2015). *Anatomy for 3D Artists: The Essential Guide for CG Professionals.* 3dtotal Publishing

(SEC)	
Paper: Graphic Design	**Code:** AVE092S211
L-T-P-C:1-0-2-2	**Credit Units:**2

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Compare** different design and themes	**BT 2**
CO 2	**Apply** the Graphic in difference type of Brading.	**BT 3**
CO 3	**Analyze** typography from a dimension of cultures, languages, and historic periods.	**BT 4**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Fundamentals of Graphic Design	Introduction to interface of software, Implement the fundamentals of colour, visual, rhythm, and pattern in design. Use scale, weight, direction, texture, and space in a composition Typeset text and experiment with letter forms Create your own series of images using different image making techniques	20
2	Typography	Review the terminology and measuring system used to describe type Explore how typefaces tell stories and understand the historic evolution Conduct a peer-reviewed typesetting exercise Design of a full-scale typographic poster	20
3	Image making	Make informed design choices using image-based research Create ranges of representation using images Compose spreads for book Design a book with your own images	20
4	Branding	Synthesize typography, image making, composition and systematic thinking skills through ideation, invention, and conceptualization Demonstrate visual research and development skills through the creation of a Brand Development Guide Expand a brand identity's palette through the inclusion of graphic marks or icons, color, secondary typefaces, and/or images	20
	Total		**80**

Generic Elective -1 (GE)	
Paper: Art of Storyboard	**Subject Code:** AVE092G211
L-T-P-C:1-0-4-3	**Credit Units:**3

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy**
CO 1	**Reproduce** script visuals through rough story-beats to use as a guide for creating the storyboard.	BT 1
CO 2	**Convert** story-beats to storyboard	BT 2
CO 3	**Explore** different Visual Language for Film to communicate ideas, emotions, and information visually to the audience	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Introduction and drawing skills for storyboard	Introduction, Storyboard Templates, Drawing Basic Characters for Storyboards How to Use the Line of Action, How to Draw in Perspective	20
2	The storyboard process	Panels, Shots, Scenes and Sequences Camera Angle and Shot needed for Storyboarding Break Down of a Script for Storyboarding	20
3	Thumbnails	Draw Thumbnails for Script Storyboarding for the Sequence Refine Storyboard and Add Numbering	20
4	Visual Language for Film	Introduction to Visual Language for Film The Principles of Composition for Storyboards Art of Storytelling Use and break of 180 Degree Rule Camera Movement on Storyboard	20
	Total		**80**

Generic Elective -2 (GE)

Paper: Special Effects	Subject Code: AVE092G211
L-T-P-C:1-0-4-3	**Credit Units:**3

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Study** illusions or simulations that would be impossible or difficult to achieve through practical means.	**BT 1**
CO 2	**Interconvert** real footage to creating new worlds and exciting experiences for viewer	**BT 2**
CO 3	**Modify** footage using digital medium to produce sophisticated and realistic special effects	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Workspace and Tools	Introduction to UI, Different Tools & Panels	15
2	Working with Chroma	Green Screen/ Blue Screen Removal with different Techniques	15
3	Masking and Mattes	Uses of Masking & Mattes to form a composition	15
4	Composition	create some composition with Real life characters using some CGI objects	15
		Total	**60**

SYLLABUS **(3ʳᵈ SEMESTER)**	
Core Papers (C)	
Paper: 2D animation	**Subject Code:** AVE092C311
L-T-P-C: 1-0-6-4	**Credit Units:** 4

Course Outcomes

	On successful completion of the course the students will be able to:	
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Review** storyboard and animatic sequence and overall flow of the story and whether the images effectively convey the intended narrative.	**BT 1**
CO 2	**Covert** animatic sequence 2-dimensional images drawing or creating each individual frame of the animation by hand or using digital software	**BT 2**
CO 3	**Apply** the knowledge of color, shapes and forms to retain mood the mass of subject to create smooth sequence.	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	2D Digital Animation	Interface and Tool, Timeline, Properties and Library, Character Dissection, Character Tracing, Character Colouring, Character Light and Shade, Guide Layer, Masking, Motion Path Animation, Rolling Coin, Bouncing Ball, Pendulum, Flag	20
2	Bio-Mechanics / Organic Animation (Digital)	Head Turn, Man Walk, Man Jump (all view), Run Cycle, Walk-Run-Stop, Character balance, Lip-syncing with sound	20
3	Bio mechanics 2d Animation	Animal animation: Walk, Jump, Walk – run – stop, eye blink, Lip-syncing with Sound	20
4	Animatic	Storyboard with dialogue and Time	20
	Total		**80**

References:

- Williams, Richard. (2001). *The Animator's Survival Kit*

Paper: 3D Lighting and Rendering	Subject Code: AVE092C312
L-T-P-C: 1-0-6-4	**Credit Units:** 4

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Review** storyboard and animatic sequence and overall flow of the story and whether the images effectively convey the intended narrative.	**BT 1**
CO 2	**Covert** animatic sequence 3-dimensional creating each individual frame of the animation using digital software	**BT 2**
CO 3	**Apply** the knowledge of Light retain mood of subject to create appealing sequence.	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	3D lighting - 1	Introduction to nature light and its properties, basic lights of the software.	20
2	3D lighting - 2	Light nodes and its attributes.	20
3	Rendering	Arnold Engine, V-ray Engine, Corona Rendering, / Render-man Engine by Pixar Studios, Cycle render	20
4	Project	Students will have to individually submit rendered images/walkthrough submit in a storage device. Teacher will supervise the projects.	20
Total			**80**

References:
- Birn, Jeremy. (2000). *Digital Lighting and Rendering*.

Paper: Introduction to Visual Effects	Subject Code: AVE092C313

L-T-P-C: 0-0-6-3   **Credit Units:** 3

Course Outcomes

	On successful completion of the course the students will be able to:	
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** and holographic sequence and overall flow of the story and whether the images effectively convey the intended narrative.	**BT 1**
CO 2	**Covert** live action world Into Imaginary world using VFX software	**BT 2**
CO 3	**Apply** the knowledge of VFX to create appealing sequence.	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Introduction to After Effects	Introduction to the UI of software, composition, tools, encoder, and rendering	20
2	Motion Graphics	Creating holographic HUD, Motion posters, animating texts, shapes and masking, trim path, and different type of effects	20
3	Visual Effects	Understanding assets and effects, Chroma key, Tracking and Stabilising and Mocha Tracking	20
4	Project	Students will have to individually submit project of each sub contents in a storage device. Teacher will supervise the projects	20
Total			**80**

Generic Elective -1 (GE)

Paper: Nuke   **Subject Code:** AVE092G311

L-T-P-C: 0-0-6-3   **Credit Units:** 3

On successful completion of the course the students will be able to:

SI No	Course Outcome	Blooms Taxonomy Level
CO 1	**Covert** live action world Into Imaginary world using VFX software	BT 2
CO 2	**Apply** the knowledge of VFX to create appealing sequence.	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Layouts and Tools	Introduction to different layouts, nodes & properties	15
2	Color Grading	Working with color grading nodes	15
3	Relighting	How to do relighting in Nuke?	15

References:
- Birn, Jeremy. (2000). *Digital Lighting and Rendering*.

SYLLABUS (4th SEMESTER)	
Paper : 2D Animation FX and Compositing	**Subject Code:** AVE092C411
L-T-P-C: 0-0-8-4	**Credit Units :** 4

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Review** 2D effects animation (also known as FX animation) special visual effects used in animation to create complex and dynamic	BT 1

	effects or natural elements.	
CO 2	**Picture graphically** each movement timing, spacing, and squash and stretch. These principles help to create a sense of weight, momentum, and fluidity in the animation	BT 2
CO 3	**Illustrate** with of technical proficiency, and attention to detail to create smooth and realistic 2d animation that captures the essence of the movement trying to depict.	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Advance 2D Animation	Separating biomechanics in performance, character dissection and rigging	15
2	FX	Water, air, fire, sand and other various dynamics of 2D animation; Understanding physics in 2D; Pseudo 3d (2.5D)	15
3	Compositing	Compositing 2D animation with background, Colour grade, Lighting and FX	15
4	Project	Students will have to individually submit project of each sub content in a storage device. Teacher will supervise the projects.	15
Total			**60**

References:

- Gill, Joseph. (2009). *Elemental Magic: The Art of Special Effects Animation.* Volume 1: (2009)

Paper : 3D Animation techniques and Dynamics	**Subject Code:** AVE092C412
L-T-P-C: 0-0-8-4	**Credit Units** : 4

Course Outcomes

On successful completion of the course the students will be able to:	
SI No	**Course Outcome**	**Blooms Taxonomy Level**

CO 1	**Study** 3D dynamics or physical properties that govern the movement and behaviour of objects in a 3D environment	BT 1
CO 2	**Demonstrate** simulating the physical properties of objects in a 3D environment, such as gravity, collisions, and friction.	BT 2
CO 3	**Experiment with** particles to create realistic effects like fire, smoke, and water.	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Character Setup- Rigging, Character Blend shapes Animation Fundamentals	Introduction to Rigging,Inorganic rig setup; Rigging Tools: Essential; Rigging In-organics: Attribute Editor; Character Rigging, Facial Expression; Animation Fundamentals, Join setup, Camera angle and light.	15
2	3D animation	Introduction to 3D Animation. Basic - Graph editor, spacing, timing and distance, Animating Bouncing Ball with concept; Box with antenna, Animation Principle, Animating more complicated objects, creating poses, Lip Syncing, ; Graph editor, Animation Walk Cycle Project, Animation Characters and Animals.	15
3	Dynamics in Maya	Cloth simulation, smoke simulation, liquid simulation and various elements and FX in 3D; understanding physics in 3D environment.	15
4	Project Submission	Students will have to individually submit project of each sub content in a storage device. Teacher will supervise the projects.	15
Total			**60**

References:

- "Understanding 3D Animation Using Maya" by John Edgar Park
- "Animated Storytelling: Simple Steps for Creating Animation and Motion Graphics" by Liz Blazer
- "Gpu Gems 2: Programming Techniques for High – Performance Graphics and General – Purpose Computation" by Matt Pharr and Randima Fernando (Series Editor)
- "Creating 3-D Animation: The Aardman Book of Filmmaking" by Peter Lord and Brian Sibley
- "3D Animation Essentials (Essentials, John Wiley)" by Andy Beane

| Paper : Advance Visual Effects and Techniques | Subject Code: AVE092C413 |
| L-T-P-C :0-0-12-6 | Credit Units : 6 |

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Record** real footage to creating new worlds and exciting experiences for viewer	**BT 1**
CO 2	**Interconvert** real footage to something that would be impossible or difficult to achieve through practical means.	**BT 2**
CO 3	**Modify** footage using advance VFX technique to produce sophisticated and realistic special effects	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Visual effects in After effects	Creating smoke, lighting and different effects, and techniques to create visual effects	20
2	Particle world and System in After Effects	Introduction to particle world in after effects, Creating particles like dust, fire, snowfall, rain, and various elements in VFX; Using different plugins likes Trapcode Paricular and Red Giants library to create advance visual effects.	20
3	Introduction to The Foundry Nuke	Introduction to the UI of the software, Composition, Tools, Encoder and Rendering; Understanding node system; Image projection, Using effects and node system to add visual effects, Matte painting, Simulation in Nuke; Colour correcting footage and adding effects.	20
4	Project	Students will have to individually submit project of each sub content in a storage device. Teacher will supervise the projects.	20
Total			**80**

References:

- Robert russet and Cecile star, experimental Animation, origins of a New Art A da Capo Paperback, Ny, 1998.

<div align="center">Generic Elective -1 (GE)</div>

Paper: Motion Graphics	**Subject Code:** AVE092G411
L-T-P-C:0-0-6-3	**Credit Units:**3

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 2	**Picture graphically** a strong sense of creativity and storytelling ability to create stunning and impactful motion graphics.	**BT 2**
CO 3	**Sequence of** graphic design combined with animation, and video production techniques to create visually compelling and dynamic content.	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Workspace and Layout	Introduction to UI, Tools & Panels	15
2	Intro to Motion Graphics	Types of Motion Graphic uses.	15
3	Text Types & Shapes Tools	How to work with different text type tools & shape tools to form motion graphics	15
4	Mattes and Masks	Using Mattes and masks to create attractive Motion Graphics	15
	Total		**60**

<div align="center">Generic Elective -1 (GE)</div>

Paper: Info Graphics	**Subject Code:** AVE092G412
L-T-P-C:0-0-6-3	**Credit Units:**3

Course Outcomes

On successful completion of the course the students will be able to:	
SI No	**Course Outcome**	**Blooms Taxonomy**

		Level
CO 2	**Picture graphically** and creativity spread information to create impact on masses.	BT 2
CO 3	**Sequence of** graphic design combined with animation, and video production techniques to create visually compelling and dynamic information content.	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Workspace	Introduction to Layouts & Tools	15
2	Intro to Info Graphics	Types of Info Graphics uses.	15
3	Shapes & Path Tools	Working with Path and Shape tools to create Infographics	15
4	Compositing	Using Infographics tools and techniques to help forming a final product	15
Total			**60**

SYLLABUS (5th SEMESTER)	
Paper: Visual Magic **L-T-P-C:** 0-1-6-4	**Subject Code:** AVE092C511 **Credit Units:** 4

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** and holographic sequence and overall flow of the story and whether the images effectively convey the intended narrative.	BT 1

CO 2	**Interconvert** real footage to something that would be impossible or difficult to achieve through practical means.	BT 2
CO 3	**Apply** the knowledge of Color Grading and Composition to create appealing shot.	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Layouts and Tools	Introduction to different layouts, User Interface nodes & properties	15
2	Working with Chroma	Working with different types of chroma Screen. Removal of chroma with different Techniques	15
3	Color Grading	Using of color Corrector Inspector, Controlling Highlights, Time Guides, Ranges etc to color grade a footage.	15
4	Composition	Necessary tools like text widget, AOV's, layered shaders, Manipulation of Timeline, to composite a final footage	15
		Total	**60**

References:

- o **Charles Haine :** Color Grading 101: Getting Started Color Grading for Editors, Cinematographers, Directors, and Aspiring Colorists
- o **Henry J James:** Getting started with Da Vince Resolve.

Paper: Introduction to Architecture Modelling	**Subject Code:** AVE092D511
L-T-P-C: 0-1-6-4	**Credit Units:** 4

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Define** the object's shape, texture, and appearance through the use of polygons, curves, and other geometric primitives.	BT 1

CO 2	**Construct** Architecture Modelling to view from any angle and use for a variety of purposes, such as set design, animation background, prototyping, etc.		**BT 3**
CO 3	**Apply** the knowledge of shapes and forms to model a 3D environment.		**BT 3**
CO 4	**Develop** new interpretations of contemporary ideas of Architecture Modelling		**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Modelling	Introduction to User Interface. Demonstrating 3ds Max to create different types of Modern, Classical, Vernacular, Contemporary Architectures	15
2	Modifiers	Using of different modifiers to deform or regulate different architectures	15
3	Materials & Texturing	Baking of different Maps such as Diffuse Map, Metallic Map, Roughness Map, Transmission Map, Height Map, Displacement Map, Sub Surface Scattering Map. Using Texturing software to finalize the look.	15
4	Physically Based Rendering	Using any Render Engine like Arnold, Vray, Lumion to export the final Render	15
Total			**60**

References:

- **Pradeep Mamgain :** *Autodesk 3ds Max 2021: Modelling Essentials.*

- **kelly L Murdock:** *Autodesk 3ds Max*

	Discipline Specific Elective (DSE)	
Paper: Specialization on 2D		**Subject Code:** AVE092D511
L-T-P-C: 0-1-6-4		**Credit Units:** 4

Course Outcomes

	On successful completion of the course the students will be able to:	
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Review** storyboard and animatic sequence and overall flow of the story and whether the images effectively convey the intended narrative.	**BT 1**
CO 2	**Picture graphically** each movement timing, spacing, and squash and stretch to create a sense of weight, momentum, and fluidity in the animation	**BT 2**
CO 3	**Illustrate** with of technical proficiency, and attention to detail to create smooth and realistic 2D animation that captures the essence of the movement trying to depict.	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Industrial Pipeline	How to Plan animation production? How to set deadline for production	15
2	Pre-production	Idea, Script, thumbnail of concept character design, sketching background designs, and storyboarding, Layout process, X sheet/ dope sheet, scratch sound recording. Animatics	15
3	Production	Character dissection and rigging, Keyframe animation, in-between animation, test, clean up, test, lip-sync, Inking and Colouring,	15
4	Project and Portfolio	Student will submit the Project and portfolio	15
	Total		**60**

References:

- The Animation Book: A Complete Guide to Animated Filmmaking

Discipline Specific Elective (DSE)	
Paper: Specialization on 3D **L-T-P-C:** 0-1-6-4	**Subject Code:** AVE092C511 **Credit Units:** 4

	On successful completion of the course the students will be able to:	
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Review** storyboard and animatic sequence and overall flow of the story and whether the images effectively convey the intended narrative.	**BT 1**
CO 2	**Build** each movement timing, spacing, and squash and stretch to create a sense of weight, momentum, and fluidity in the animation	**BT 2**
CO 3	**Modify** keyframes to produce sophisticated and realistic 3D animation	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Conceptualizing & Modelling	Creating the character and the environment using Polygon primitives, NURBS Primitives, Volume Primitives	15
2	Rigging & Texturing	Rigging Tools: Essential; Rigging In-organics: Attribute Editor; Character Rigging, Facial Expression; Animation Fundamentals, Join setup, Camera angle and light.	15
3	Advance Rigging & Texturing	Setting up the mechanisms using constraints and editors and shaders of the desired environment using Hyper shade.	15
4	Project and Portfolio	Student will submit the Project and portfolio	15

Total	60

References:

- **Marisa Lewis :** *Creating Stylized Characters.*
- **Eric Allen, Kelly L. Murdock:** *Edgeloop Character Modeling For 3D Professionals Only*
- **Tina O'Hailey:** *Rig it Right! Maya Animation Rigging Concepts*
- **Ron Brinkmann :**. *The Art and Science of Digital Compositing*

SYLLABUS (6th SEMESTER)	
Paper: Introduction to Substance Painter **L-T-P-C:** 0-1-6-4	**Subject Code:** AVE092D611 **Credit Units:** 4

On successful completion of the course the students will be able to:

SI No	Course Outcome	Blooms Taxonomy Level
CO 1	**Review** a range of tools and brushes for painting directly onto 3D models,	BT 1
CO 2	**Build** high-quality textures and materials for 3D models.	BT 2
CO 3	**Modify** masks and layers to control the placement and appearance of textures	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Painter Basics	Going over substance UI, creating a new scene, using generators, procedurals, brushes, particles etc. with mask to maintain a non-destructive workflow, going over smart materials and how to create own, sexporting textures and making own pre-sets for exporting. Rendering inside substance painter	15

2	PBR Fundamentals and Texturing	PBR explanation, briefly going over UVs and best practices, Exporting meshes from external software for substance, using naming convention for baking, importing externally baked maps, Texturing metallic/non-metallic props of a character.	15
3	Texturing a Face in Painter	Principle of skin texturing, Texturing skin using painter, texturing different skin using painter.	15
4	Finishing the Face Textures	Detailing the skin texture and adding specific details on it like moles, scars, tattoos, war paint etc, Finalizing the skin texture, Creating the supporting maps inside Substance: Gloss/Roughness, Translucency, Scatter, Detail weight map, Using the same knowledge to texture other parts of a human body	15
Total			**60**

References:

- Epaquiet: Substance Designer book: A year of materials
- Abhishek KUMAR: Beginning PBR Texturing: Learn Physically Based Rendering with Allegorithmic's Substance Painter

Paper : NUKE	**Subject Code:** AVE092D612
L-T-P-C: 0-1-6-4	**Credit Units:** 4

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** and holographic sequence and overall flow of the story and whether the images effectively convey the intended narrative.	**BT 1**
CO 2	**Covert** live action world Into Imaginary world using VFX software	**BT 2**
CO 3	**Apply** the knowledge of VFX to create appealing sequence.	**BT 3**

Detailed Syllabus:

Modules	**Name**	**Course Contents**	**Periods**

1	Interface of Nuke	preferences, project setting and simple an example(s), Viewers control, shortcuts, animation with basic tools like transform, blur etc. use of dope sheet curve editor controller	15
2	Camera Projection	3D Environment and Camera Projections	15
3	Tracking	Four-point tracking, Use of 3D Tracking and Geometry Data	15
4	Render Passes	Render Passes and Re-lighting in CG	15
	Total		**60**

References:

- **Sham Tickoo:** The Foundry Nuke X for compositors
- **Dr. Abhishek Kumar, Dr. Achintya Singhal, Dr. Jitendra Sheetlani:** Understanding Elementary Visual Effects & Compositing Using Foundry Nuke

Discipline Specific Elective (DSE)	
Paper: Post-Production for 2D	**Subject Code:** AVE092D611
L-T-P-C: 0-1-6-4	**Credit Units:** 4

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Study** film noir through the visual style and aesthetic of a 2D animation film, which can be achieved through a combination of elements such as cinematic look, lighting, art style and color grading.	BT 1
CO 2	**Factor** that contributes to the way in which a 2D scene is captured on film or digital media are shot composition, and layout process, and they all contribute to the overall interpretation of the scene.	BT 2
CO 3	**Apply** the knowledge of post-production to **compose** 2D animation shot.	BT 3
CO 4	**Develop** new interpretations of contemporary ideas of animation based on an understanding of 2D animation production.	BT 3

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Painter Basics	Going over substance UI, creating a new scene, using generators, procedurals, brushes, particles etc. with mask to maintain a non-destructive workflow, going over smart materials and how to create own, exporting textures and making own pre-sets for exporting. Rendering inside substance painter	15
2	PBR Fundamentals and Texturing	PBR explanation, briefly going over UVs and best practices, Exporting meshes from external software for substance, using naming convention for baking, importing externally baked maps, Texturing metallic/non-metallic props of a character.	15
3	Texturing a Face in Painter	Principle of skin texturing, Texturing skin using painter, texturing different skin using painter.	15
4	Finishing the Face Textures	Detailing the skin texture and adding specific details on it like moles, scars, tattoos, war paint etc, Finalizing the skin texture, Creating the supporting maps inside Substance: Gloss/Roughness, Translucency, Scatter, Detail weight map, Using the same knowledge to texture other parts of a human body	15
Total			**60**

References:

• **Abhishek KUMAR:** Beginning PBR Texturing: Learn Physically Based Rendering with Allegorithmic's Substance Painter

Discipline Specific Elective (DSE)	
Paper: Post Production for 3D **L-T-P-C:** 0-1-6-4	**Subject Code:** AVE092D611 **Credit Units:** 4

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Study** film noir through the visual style and aesthetic of a 3D animation film, which can be achieved through a combination of elements such as cinematic look, lighting, art style and color grading.	**BT 1**

CO 2	**Factor** that contributes to the way in which a 3D scene is captured on film or digital media are shot composition, and layout process, and they all contribute to the overall interpretation of the scene.		**BT 2**
CO 3	**Apply** the knowledge of post-production to **compose** 3D animation shot.		**BT 3**
CO 4	**Develop** new interpretations of contemporary ideas of animation based on an understanding of 3D animation production.		**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	AOV's	Creating and rendering of AOV's for final output using Arnold Render Engine	15
2	Compositing	Using compositing software to compose the different rendered AOV's for Final output	15
3	Editing and sound	Using editing software to edit the different rendered and composite shot for Final output	15
4	Project and portfolio	Student will submit project and portfolio	15
Total			**60**

References:

- **Marisa Lewis :** *Creating Stylized Characters.*
- **Eric Allen, Kelly L. Murdock:** *Edgeloop Character Modeling For 3D Professionals Only*
- **Tina O'Hailey:** *Rig it Right! Maya Animation Rigging Concepts*
- **Ron Brinkmann :.** *The Art and Science of Digital Compositing*

Discipline Specific Elective (DSE)	
Paper: Camera Projection and Integration **L-T-P-C:** 0-1-6-4	**Subject Code:** AVE092D611 **Credit Units:** 4

Course Outcomes

On successful completion of the course the students will be able to:	
SI No	**Course Outcome**	**Blooms Taxonomy Level**

CO 1	**Understand** UI and UX overall flow. Understanding of geometry, optics, and sensor fusion techniques.	**BT 1**
CO 2	**Compute** mapping a 3D point in space to a 2D point on an image plane	**BT 2**
CO 3	**Apply** and set a parameters that describe the position and orientation of the camera, as well as the intrinsic properties of the camera such as focal length, image sensor size, and lens distortion.	**BT 3**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Introduction to UI & UX	Introduction to UI & UX, software and interface	15
2	Camera Projection with geometry	Using Projection software to camera project the different geometry	15
3	Exporting and integration	Exporting camera projection nodes to 3d programme, integration	15
4	Project and portfolio	Student will submit project and portfolio	15
Total			**60**

SYLLABUS (7th Semester)
C-15: Research Methodology-I **Subject Code: FTP092C701** **L-T-P-C: 4-0-0-4** **Credit Units: 4**

Course Objectives

Introduce the idea of research to the students and develop scientific temper through adoption of various scientific methods. It will further enable students learn the basics of research and its presentation

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Bloom's Taxonomy Level**
CO 1	**Define** research, understand the various dimension and processes involved in research	**BT 1**
CO 2	**Outline** the various research design strategies and its application in research	**BT 2**
CO 3	**Identify** problem and formulate research questions in the form of hypothesis	**BT 3**
CO 4	**Analyze** and present data which are acquired in the research process	**BT 4**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Basics of Research	Definition, Concept and Motives of Research; Types and Objectives of Research; Characteristics of Research; Research processes	10
2	Research Problem	Problem Identification & Formulation; Research Question; Research Gap, Significance of Research, Hypothesis; Qualities of a good Hypothesis; Null Hypothesis & Alternative Hypothesis; Hypothesis Testing – Logic & Importance	10
3	Research Design	Concept and Importance in Research; Theoretical Framework, Methodological Framework; Exploratory Research Design; Descriptive Research Designs; Experimental Design: Concept of Independent & Dependent variables	10
4	Data and its Presentation	Qualitative and Quantitative data; Questionnaire Design; Open and Close ended questions; Statistical Tools and Techniques; Descriptive and Inferential Analysis, Presentation of data in the form of graphs, charts and bars using Excel	10
Total			**40**

Textbooks

Freedman, P (1960). *The Principles of Scientific Research.* New York: Pergamon Press
Gopal, M.H. (1964). *An Introduction to Research Procedure in Social Sciences.* Bombay: Asia Publishing House

References

Gopal, M.H (1965). *Research Reporting in Social Sciences.* Dharwar: Karnatak University
Wilkinson, T.S. and Bhandarkar, P.L. (1979). *Methodology and Techniques of Social Research,*
Bombay: Himalaya Publishing House
Fox, James Harold (1958). *Criteria of Good Research.* Phi Delta Kappa: London
Freedman, P. (1960). *The Principles of Scientific Research.* 2nd ed., New York: Pergamon Press
Gopal, M.H. (1964). *An Introduction to Research Procedure in Social Sciences.* Bombay: Asia
Publishing House

SYLLABUS **(8ᵗʰ SEMESTER)**	
C-16: Research Methodology-II **Subject Code: FTP092C801** **L-T-P-C: 4-0-0-4** **Credit Units: 4**	

Course Objectives

Introduce the idea of research to the students and develop scientific temper through adoption of various scientific methods. It will further enable students learn the basics of research and its presentation in a more advance form

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Bloom's Taxonomy Level**
CO 1	**Define** sampling, understand the various types of sample in data collection	**BT 1**
CO 2	**Explain** what academic writing is and thereafter understand the various ethical issues involved in academic writing	**BT 2**
CO 3	**Develop** an academic paper and decide where, when and how to publish any finished work	**BT 3**
CO 4	**Take part** in presenting information by using various advance tools/software	**BT 4**

Detailed Syllabus:

Modules	Name	Course Contents	Periods
1	Sampling	Concepts of Statistics in Research, Sampling and Types of Sampling, Sampling design and Selection, Determining size of the sample – Practical considerations in sampling and sample size	10
2	Data Analysis	Defining Data, Data Collection, Data Analysis and Interpretation, Descriptive and Inferential Analysis, Bar charts, pie charts, percentages; Cross tabulations and Chi-square test, Hypothesis Testing; Introduction to Software: SPSS	10
3	Writing Academic Papers	Art of Writing Scholarly Research Papers, Layout of a Research Paper; Styles and Formats of Writing; Ethical issues in publishing: Copyright, Plagiarism and Self-Plagiarism	10
4	Tools and Techniques of Research	Academic repositories; Reference Management Software like Zotero/ Mendeley, Software for paper formatting like LaTeX/MS Office, Software for detection of Plagiarism	10
Total			**40**

Textbooks
Freedman, P (1960). *The Principles of Scientific Research.* New York: Pergamon Press
Gopal, M.H. (1964). *An Introduction to Research Procedure in Social Sciences.* Bombay: Asia Publishing House

References
Gopal, M.H (1965). *Research Reporting in Social Sciences.* Dharwar: Karnatak University
Wilkinson, T.S. and Bhandarkar, P.L. (1979). *Methodology and Techniques of Social Research,* Bombay: Himalaya Publishing House