Maulana Abul Kalam Azad University of Technology, West Bengal
Syllabus of B.Sc.in VFX Film Making (CBCS)
Effective from academic session 2020-2021

SEM-1

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BVFM 101	INTRODUCTION TO DRAWING	4	0	0	6
		BVFM 191	INTRODUCTION TO DRAWING Lab	0	0	2	
2.		BVFM 102	ADVANCE DRAWING	4	0	0	6
		BVFM 192	ADVANCE DRAWING Lab	0	0	2	
	Elective (Any 1 of GE Basket)						
3.	GE	GE1B-01	Mind and Measurement.	5	1	0	6
		GE1B-02	Introduction to Hospitality Industry and major Departments.	5	1	0	6
		GE1B-03	Health Education & Communication.	5	1	0	6
		GE1B-04	Sustainability & Fashion.	5	1	0	6
		GE1B-05	The Yoga Professional.	5	1	0	6
4.	AECC	BVFM 103	Environmental Science	2	0	0	2
			Total Credit				20

SEM-2

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BVFM 201	SCRIPT TO SCREEN; UNDERSTANDING FILM TECHNOLOGY AND FILM LANGUAGE	4	0	0	6
		BVFM 291	SCRIPT TO SCREEN; UNDERSTANDING FILM TECHNOLOGY AND FILM LANGUAGE Lab	0	0	2	
2.		BVFM 202	GRAPHIC DESIGNING, AUDIO & VIDEO EDITING	4	0	0	6
		BVFM292	GRAPHIC DESIGNING, AUDIO & VIDEO EDITING Lab	0	0	2	
	Elective (Any 1 from GE Basket)						
3.	GE	GEB201	Cinema and Other Arts.	5	1	0	6
		GEB202	Surface & Soft Furnishings Design Development Techniques.	5	1	0	6
		GEB203	Advertising	4	0	0	6
		GEB293	Advertising Lab	0	0	2	
4.	AECC	BVFM 203	English Communication	2	0	0	2
			Total Credit				20

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SEM-3

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BVFM 301	CLAY MODELLING & CG MODELING	4	0	0	6
		BVFM 391	CLAY MODELLING & CG MODELING Lab	0	0	2	
2.		BVFM 302	TEXTURING	4	0	0	6
		BVFM 392	TEXTURING Lab	0	0	2	
3.		BVFM 303	RIGGING & 3D ANIMATION	4	0	0	6
		BVFM 393	RIGGING & 3D ANIMATION Lab	0	0	2	
	Elective (Any 1 from GE Basket)						
4.	GE	GE3B-01	1. STUDY OF TEXTILES	5	1	0	6
		GE3B-02	2. IT LITERACY	5	1	0	6
		GE3B-03	3. BASIC MATHEMATICS & STATISTICS	5	1	0	6
		GE3B-04	4. MATHEMATICS FOR COMPUTER SCIENCE PART-1	5	1	0	6
5.	SEC	BVFM 304	Soft Skill Development	2	0	0	2
			Total Credit				26

SEM-4

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BVFM 401	LIGHTING & COMPOSITING; INTRODUCTION TO NUKE	4	0	0	6
		BVFM 491	LIGHTING & COMPOSITING; INTRODUCTION TO NUKE Lab	0	0	2	
2.		BVFM 402	CG PYRO – TECHNIQUES	4	0	0	6
		BVFM 492	CG PYRO – TECHNIQUES Lab	0	0	2	
3.		BVFM 403	ROTO; PAINT; CHROMA KEYING	4	0	0	6
		BVFM 493	ROTO; PAINT ; CHROMA KEYING Lab	0	0	2	
	Elective (Any 1 from GE Basket)						
4.	GE	GE4B-01	1. OPERATING SYSTEMS WITH LINUX	5	1	0	6
		GE4B-02	2. ENTERPRENEURSHIP THEORY & PRACTICE	5	1	0	6
		GE4B-03	3. BASICS OF COMPUTING	5	1	0	6
5.	SEC	BVFM 404	VISUAL COMMUNICATION	2	0	0	2
			Total Credit				26

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SEM-5

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BVFM 501	CLEAN UPS & MATTE PAINTING	4	0	0	6
		BVFM 591	CLEAN UPS & MATTE PAINTING Lab	0	0	2	
2.		BVFM 502	CAMERA TRACKING + MATCH MOVING	4	0	0	6
		BVFM 592	CAMERA TRACKING + MATCH MOVING Lab	0	0	2	
Elective (Any 2 from the list)							
3.	DSE		Elective				
		BVFM 503	LIVE ACTION FILM MAKING (Experimental)	4	0	0	6
		BVFM 593	LIVE ACTION FILM MAKING (Experimental) LAB	0	0	2	
		BVFM 504	DIGITAL PHOTOGRAPHY	5	1	0	6
		BVFM 505	WRITTEN AND PRESENTATION SKILLS	5	1	0	6
4.		BVFM 581	Group Project (Short Film)	0	0	6	6
Total Credit							

SEM-6

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BVFM 601	LIVE ACTION; COMPOSITING, SET EXTENSION, CINEMATOGRAPHY	4	0	0	6
		BVFM 691	LIVE ACTION; COMPOSITING, SET EXTENSION, CINEMATOGRAPHY Lab	0	0	2	
2.		BVFM 602	ADVANCE COMPOSITING & CG INTEGRATION	4	0	0	6
		BVFM 692	ADVANCE COMPOSITING & CG INTEGRATION	0	0	2	
3.	DSE	BVFM 681	Project (Portfolio)	0	0	6	6
4.		BVFM 682	Internship	0	0	6	6
Total Credit							24

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SEMESTER-1

Paper: INTRODUCTION TO DRAWING

Code: BVFM 101

Course Objective: The course is designed to provide an introduction to the fundamental aspects of design, drawing methodologies as well as visual communication. Students will be able to develop a sense of design aesthetics as well as create better processes of design systems. They can understand the form by learning basic shapes, composition and light, perspective figure drawing.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Introduction to Basic Drawing	6	25		
M 2	Introduction to Basic Perspective	8	25		
M 3	Basic Figure Drawing	8	25		
M 4	Masses of the Figure	8	25		
		30	**100**		

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Introduction to Drawing
Total Credit: 4
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Introduction to Basic Drawing:** • Comprehensive introduction to the essentials of drawing • Points and lines- Types, Direction, Quality, lines and outlines, contours, Lines as value, Shapes, Geometric and Rectilinear, Curvilinear and Biomorphic, Abstract, Positive. • Learn the fundamentals of shape • Mastering the art of drawing shapes and achieving a deeper understanding of all forms. • Composition of the forms and working with light and shade.	6
2.	**Module 2- Introduction to Basic Perspective:** • Understanding the basic elements (of perspective & how they work together to create illusion of 3D forms. • The various elements of perspective and composition would enable students to expressively and aesthetically arrange their subjects within the boundaries of a drawing space. • Learn the One-point, Two-point and Three-point perspective principles with practical examples • How to use one & two-point perspective to draw three dimensional objects from your imagination • Have a clear understanding of how to build perspective grids. • Draw objects and environments- interiors and exteriors	8
3.	**Module 3-Basic Figure Drawing:** • Deeper understanding of the curves and lines that make up male and female bodies. • Dynamics of freehand sketching • Line of action, apply the line, C-curve, and S-curve to the figures. • Draw great action poses using gesture drawings • Capture and draw gesture poses properly.	8
4.	**Module 4- Masses of the Figure:** • Scale and Proportion- Human scale, Contrast and Confusion, Ideal Proportion, • Contrast and emphasis- Contrast, Isolation, Placement, Absence of Focal point • Rhythm- Rhythm and motion, Alternating and Progressive Rhythm, Rhythmic Sensation. • Add basic shapes to represent body parts. • Draw an incredible variety of poses, actions, and gestures with the correct relationships between forms.	8

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Suggested Readings:

1. Fun with Pencil – Andrew Loomis.
2. Basic figure drawing techniques - Greg Albert
3. Anatomy and Drawing by Victor Perard
4. Andrew Loomis - Figure Drawing For All It's Worth
5. Perspective Made Easy – Ernest R. Norling
6. Learn how to draw - John Hagan

Paper: INTRODUCTION TO DRAWING Lab

Code: BVFM 191

Course Objective: The course is designed to provide an introduction to the fundamental aspects of design, drawing methodologies as well as visual communication. Students will be able to develop a sense of design aesthetics as well as create better processes of design systems. They can understand the form by learning basic shapes, composition and light, perspective figure drawing.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Introduction to Basic Drawing	8	40		
M 2	Introduction to Basic Perspective	8			
M 3	Basic Figure Drawing	12	40		
M 4	Masses of the Figure	12			
		40	**80**		

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Introduction to Drawing Lab
Total Credit: 2
Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Introduction to Basic Drawing:** • Warm up exercises – drawing circles, spirals, curves. • Drawing lines- Types, Direction, Quality, lines and outlines, contours, Lines as value, Shapes, Geometric and Rectilinear, Curvilinear and Biomorphic, Abstract, Positive. • Learn the fundamentals of shape • Mastering the art of drawing shapes and achieving a deeper understanding of all forms. • Composition of the forms and working with light and shade.	8
2.	**Module 2- Introduction to Basic Perspective:** • Creating the basic elements (of perspective & how they work together to create illusion of 3D forms.. • Drawing objects like table, chair, bed, vehicles in one & two-point perspective • Draw objects and environments- interiors and exteriors using reference. • Draw objects and environments- interiors and exteriors from imagination	8
3.	**Module 3-Basic Figure Drawing:** • Sketching male and female bodies using gesture line freehand sketching • Line of action, apply the straight line, C-curve, and S-curve to the figures. • Draw great action poses using gesture drawings by applying the line, C curve and S curve to the figures • Capture and draw gesture pose properly.	12
4.	**Module 4- Masses of the Figure:** • Add basic shapes to represent body parts. • Draw an incredible variety of poses, actions, and gestures with the correct relationships between forms.	12

Suggested Readings:

1. Fun with Pencil – Andrew Loomis.
2. Basic figure drawing techniques - Greg Albert
3. Anatomy and Drawing by Victor Perard
4. Andrew Loomis - Figure Drawing For All It's Worth
5. Perspective Made Easy – Ernest R. Norling
6. Learn how to draw - John Hagan

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Paper: ADVANCE DRAWING

Code: BVFM102

Course Objective: The course is designed to provide learning and application industry-standard drawing techniques. Students will be able to draw realistic and conceptual content with appropriate light or value, shadow texture and form using effective techniques. The students will be able to create drawing just about anything from observation, whether it be people and figures, landscapes, cityscapes, still life and more.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M3, M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Dynamic drawing of human figure	5	25		
M 2	Detailed Figure Drawing	5	25		
M 3	Composition with Light & Shade	12	25		
M 4	Force Drawing & anatomy	10	25		
		30	**100**		

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Advance Drawing
Total Credit: 4
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1-Dynamic Drawing of Human Figure:** The students will be able to visualize the figure in the tremendous variety of poses which the body takes in action, poses which plunge the various forms of the body into deep space and show them in radical foreshortening. • Draw the human form from any angle or pose • Pose the human form • Draw male and female figures • Draw the figure without using reference • Have the ability to create a figure from their mind	5
2.	**Module 2- Detailed Figure Drawing:** • Anatomy and structure of the realistic eye, nose, mouth and ear before learning how to accurately draw them, either from imagination or from a subject. • Drafting hair and drapery • Detailed figure of human, animal and birds including gesture, line, block-in, structural drawing, and applying tone or value • Drawing the expression sheets (facial, mouth chart, full body)	5
3.	**Module 3- Composition with Light & Shade:** • Rules of "composition" • Understanding the concepts of perspective as a tool in visual content creation • Application of the knowledge concerning light and shade, composition, spatial usage, and so on • Observe & Draw realistic light and shadow • Draw Landscape • Draw backgrounds – (Foreground, mid ground & Background) • Pencil Rendering Color – Still Life • Texturing , Scene Composition (including character) • How to bring your drawings to life with detail and texture.	12
4.	**Module 4- Force Drawing and Anatomy:** • Introduction to Action Drawings • Forceful Shape and form (Humans, Animals , Birds) • Exploring the different facets of motion and the human body. • Basics of proportions, and how to simplify the skeleton. • Drawing the skeleton and learning where all the muscles attach, which is key to drawing figures from imagination. • Stresses the function of each body part and how gravity relative to different poses affects the aesthetics and form of muscle. • Drawing realistic figures from imagination.	10

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Suggested Readings:
1. Dynamic Figure Drawing by Burne Hogarth.
2. Force Drawing by Michael Matisse.
3. Classic Human Anatomy in Motion_ The Artist's Guide to the Dynamics of Figure Drawing
4. Ken Hultgren - The Art of Animal Drawing
5. Drawing Animals – Victor Ambrus
6. Force_ Animal Drawing_ Animal locomotion and design concepts for animators
7. Animation Background & Layout – Mike S. Fowler

Paper: ADVANCE DRAWING Lab

Code: BVFM 192

Course Objective: The course is designed to provide learning and application industry-standard drawing techniques. Students will be able to draw realistic and conceptual content with appropriate light or value, shadow texture and form using effective techniques. The students will be able to create drawing just about anything from observation, whether it be people and figures, landscapes, cityscapes, still life and more.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M3, M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Dynamic drawing of human figure	5	40		
M 2	Detailed Figure Drawing	10			

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M 3	Composition with Light & Shade	10	40		
M 4	Force Drawing & anatomy	15			
		40	**80**		

Advance Drawing Lab
Total Credit: 2
Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1-Dynamic Drawing of Human Figure:** • Drawing human poses from any angle or pose • Posing the human form • Drawing detailed male and female figures • Draw human figure without using reference	5
2.	**Module 2- Detailed Figure Drawing:** • Anatomy and structure of the realistic eye, nose, mouth and ear before learning how to accurately draw them, either from imagination or from a subject. • Drafting hair and drapery • Detailed figure of human, animal and birds including gesture, line, block-in, structural drawing, and applying tone or value • Drawing the expression sheets	10
3.	**Module 3- Composition with Light & Shade:** • Drawing Landscape • Draw backgrounds – (Foreground, mid ground & Background) • Pencil Rendering Color – Still Life • Texturing , Scene Composition (including character) • How to bring your drawings to life with detail and texture.	10
4.	**Module 4- Force Drawing and Anatomy:** • Action Drawings • Forceful Shape and form (Humans, Animals , Birds) • Exploring the different facets of motion and the human body. • Basics of proportions, and how to simplify the skeleton. • Drawing the skeleton, attaching muscles, which is key to drawing figures from imagination.. • Drawing realistic figures from imagination.	15

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Suggested Readings:
1. Dynamic Figure Drawing by Burne Hogarth.
2. Force Drawing by Michael Matisse.
3. Classic Human Anatomy in Motion_ The Artist's Guide to the Dynamics of Figure Drawing
4. Ken Hultgren - The Art of Animal Drawing
5. Drawing Animals – Victor Ambrus
6. Force_ Animal Drawing_ Animal locomotion and design concepts for animators
7. Animation Background & Layout – Mike S. Fowler

Paper: ENVIORNMENTAL SCIENCE

Code: BVFM 103

Course Objective: The course is designed to facilitate students' understanding of complex environmental issues from a problem-oriented, interdisciplinary perspective. They will understand core concepts and methods from ecological and physical sciences and their application in environmental problem-solving. It will bring about an awareness of a variety of environmental concerns. It will attempt to create pro-environmental attitude and behavioural pattern in society that is based on creating sustainable lifestyles.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Basic concepts of Environmental Science	3	10		

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M 2	Environment-civilization interface	3	15		
M 3	Ecosystems	3	15		
M 4	Environmental ethics	4	25		
M 5	Current environmental issues in India	3	15		
M 6	Concept of Sustainability	4	20		
		20	**100**		

Environmental Science
Total Credit: 2
Total hours of lectures: 20 hours

Sl.	Topic/Module	Hour
1.	**Basic concepts of Environmental Science**: • Concept of environment; Principle and scope of environmental science; • Multidisciplinary approach of environmental science; • Basic concepts and genesis of global environmentalism; Environmental education and awareness; • Environmental ethics and global imperatives; • Anthropocentric environmental view.	3
2.	**Environment-civilization interface**: • Human society and settlement; • Process of cultural transmission; • Gradual social changes in relation to environment; • Nature vs. Nurture; • Global environmental problems and initiatives; Global and Indian context of demography.	3
3.	**Ecosystems:** • Concept of an ecosystem, introduction, types, characteristic features, structure and function of the following ecosystems :-Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries), producers, consumers and decomposers, energy flow in the ecosystem, ecological succession, food chains, food webs and ecological pyramids.	3
4.	**Environmental ethics:** • Issues and possible solutions Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Wasteland reclamation,	4

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	Consumerism and waste products,	
	• Environment Protection Act,	
	• Air (Prevention and Control of Pollution) Act,	
	• Water (Prevention and control of Pollution) Act, Wildlife Protection Act,	
	• Forest Conservation Act,	
	• Issues involved in enforcement of environmental legislation, Public awareness.	
5.	**Current environmental issues in India:** • Environmental movements and related issues in India-Bishnoism, Silent valley movement, Narmada Dam, Teheri Dam, Almetti Dam, River Linking, • Joint Forest Management, • Chipko movement, Apikko movement, • River cleaning initiatives; • Ecological restorations: case studies from Ramsar wetlands and mines; Waste land and their reclamation; Desertification and its control.	3
6.	**Concept of Sustainability:** • Sustainability indices; • Strategies and debates on sustainable development; • Concept of Sustainable Agriculture; India's environment action programme: issues, approaches and initiatives towards Sustainability; • Sustainable development in practice; • Urbanization; Urban sprawling and urban growth; Concept and characteristics of smart city; Urban resources and environmental problems; Carrying capacity analysis; Concept of ecological footprints.	4

FIELD WORK

1. Visit to a local area to document environmental assets river/forest/grassland

/hill/mountain

2. Visit to a local polluted site-Urban/Rural/Industrial/Agricultural

3. Study of common plants, insects, birds.

4. Study of simple ecosystems-pond, river, hill slopes, etc.

Suggested Reading:

1. Erach Bharucha (2013), Textbook of Environmental Studies for Undergraduate Courses Second Edition, Hyderabad: UniversitiesPress.

2. C.R.Townsend, M.Begon&J.L.Harper (2008), Essentials of Ecology Third Edition, United Kingdom, Oxford: Blackwell Publishing.

3. H.V.Jadhav &V.M.Bhosale (2006), Environmental Protection & Laws, Mumbai: Himalaya Publishing House.

4. B.B.Singh (2016), Objective Environmental Sciences, Ramesh Publishing House.

5. N.Arrumugam, V.Kumaresan, Enviornmental Studies

6. Asthana D.K., Asthana Meera (2010), A Textbook of Environmental Studies, S Chand.

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Course Name: Mind and Measurement
Course Code: GE1B-01

Mode- Offline/ Blended

Course Objectives: The course has been designed to explore the emotional and motivational states of mind along with knowledge and application of higher cognitive functions. The learner will be able to apply the knowledge of cognition, conation and effect on the human psyche in the context of personal and professional domains and make a relation between brain and body through the understanding of Human Physiology, various psychological processes and changes throughout the

Sl	Course Outcome	Mapped modules
CO1	Explaining the concept and the physiological correlates of emotion.	(M1) BL2
CO2	Understanding the different theoretical aspects of emotion.	(M2) BL2
CO3	Explaining the concept and the physiological correlates of motivation.	(M3) BL2
CO4	Understanding the different theoretical aspects of motivation.	(M4) BL2
CO5	Labeling different span of attention.	(M5) BL2
CO6	Assessment of memorization capacity	(M6) BL1, BL2

lifespan of humans.

Module	Content	Total Hours	%ageof questions	Blooms Level (if applicable)	Remarks (If any)
Module1	Define Emotion and Physiological correlates of emotion: Electrical, Circulatory changes, Respiration and Peripheral measures. The role of Cortex in Emotions. Concept of Homeostasis.	5	15	2	
Module 2	Theories of Emotion : James-Lange; Cannon-Bard, Lindsay, Schachter-Singer, and Lazarus	8	20	2	
Module3	Understanding the concept of Motivation in connection to its role in education and physiological basis of hunger, thirst.	8	20	2	
Module4	Theories of Motivation – Maslow, McClelland,Murray. Application, Nature of thinking; Inductive and Deductive reasoning; Problem solving approaches	10	15	2	

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Module					
Modu le5	Assessment of the different span of attention-sustained attention (digit vigilance test) test of divided attention (triad) test of focused attention (trail making)	12	15	2	
Module 6	Interpretation and practical application of memory, learning and forgetting using - whole vs part learning, spaced vs un-spaced learning, retroactive inhibition, pro-active inhibition. Learning curve,	15	15	1,2	
		58	100		

Paper Code: **GE1B-01**
Mind and Measurement
Total Credit: 6

Detailed Syllabus

Module 1- Define Emotion, Nature, Impact & Expression. Physiological correlates of emotion: Electrical, Circulatory changes, Respiration and Peripheral measures. The role of Cortex, Hypothalamus & Limbic System in Emotions. Concept of Homeostasis. Kluver-BucySyndrome. **Total Hours: 5**
Module 2- Theories of Emotion: James-Lange Theory of Emotion; Cannon-Bard Thalamic Theory of Emotion, Activation Theory of Emotion by Lindsley, Two Factor Theory by Schachter-Singer, and Cognitive Appraisal Theory of Lazarus: Concept, Research Evidence, Implication, Critical Appraisal for each theory   Total Hours: 8
Module 3- Understanding the concept of Motivation, Drive, Need, Impulse in connection to its role in education, physiological basis of hunger, thirst: mechanisms within the system with neurobiological underpinning & special emphasis on research evidence.   **Total Hours: 8**
Module 4- Theories of Motivation – Need Hierarchical Theory by Maslow, Achievement Motivation Theory by McClelland, Theory of Psychogenic Needs by Murray: Concept, Research Evidence, Implication, Critical Appraisal for each theory, Application, Nature of thinking; Inductive and Deductive reasoning; Problem solving approaches   **Total Hours: 10**
Module 5- Practicum Assessment of the different span of attention- sustained attention (digit vigilance test)Test of divided attention (triad) Test of focused attention (trail making)   **Total Hours: 12**

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Module 6-Practicum
Interpretation and practical application of memory, learning and forgetting using - whole vs part learning, spaced vs un-spaced learning, retroactive inhibition, pro-active inhibition. Learning curve
Total Hours: 15

Suggested Readings

- Morgan, C. T., King, R. A., Weisz, J. R., &Schopler, J. (2006). Introduction to Psychology, 7th eds.
- Fredrickson, B., Loftus, G. R., Lutz, C., & Nolen-Hoeksema, S. (2014).

Atkinson and Hilgard'sintroduction to psychology. Cengage Learning EMEA.

- Schultz, D. P., & Schultz, S. E. (2020). *Psychology and work today*. Routledge.
- Woodsworth, R. S., & Schlosberg, H. (1954). Experimental psychology (Rev. ed.). *New York: Holt*

Course Name: Introduction to Hospitality Industry and Major Departments
Course Code: GE1B-02
Mode- Blended

Course Objective: The course is designed to provide overall concept of a hotel operation, the major operating departments, hierarchy, job profiling, functions and relation amongst the departments.

Sl	Course Outcome	Mapped modules
1	Understand hospitality industry and relationship withtourism.	M1, M2
2	Understand basic front office operation.	M2, M1
3	Understand basic Housekeeping operation	M2, M3
4	Understand the importance of safety and hygiene.	M2.M3.M4
5	Understand the basic F &B service operation.	M1 ,M5
6	Understand & demonstrate menu and types of service	M5 ,M6

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Introduction to hospitality	6	10	1,2	
M 2	Basic Front office operation	12	15	2,3	
M 3	Basic Housekeeping operation	12	15	2,3	
M 4	Safety and hygiene	06	20	2,3	
M 5	Basic F&B service operations	12	20	3,4	
M 6	Menu and types of service	12	20	3,4	
		60	100		

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Introduction to Hospitality Industry and Major departments
Total Credit: 6

Detailed Syllabus:

Module 1 – Introduction to Hospitality Industry: Characteristics of Hospitality Industry and relation with Tourism, Types and Classification of Hotels, Departments in Hotels like Front Office, House Keeping, F&B Service and non-revenue earning departments and their co-ordination. (06 hours)

Module 2 – Basic Front Office Operations: Organizational chart of Front Office department with duties and responsibilities of staff, Types of guest room, basis of charging tariff, meal plans, type of guests, responsibility of Front Office department, Procedures in Front Office, Pre-registration, registration procedures, Bell-desk, Concierge, Cahier, Night Audit. Registration procedure, Role-play for check-in checkout procedures. Sanitization procedures. (12 Hours)

Module 3 –Basic Housekeeping Operations:Organizational chart of House Keeping department with duties and responsibilities of staff, responsibility of House Keeping department, Layout of Guest room, Guest supplies and amenities, Floor and Pantry, Room cleaning procedures, key control, lost and found procedures, forms formats and registers in Housekeeping, functions of House Keeping control desk. Role-play for complain handling and various services. (12 Hours)

Module 4 – Safety and Hygiene: Importance of Safety and Hygiene, Sanitization techniques for guest, hotel personnel, offices, Guest rooms and Public areas, Liaison with Public health department, Accidents, Fire, and security. Concept of First aid and artificial respiration (06 Hours)

Module 5 – Basic F&B Service Operations: Organizational chart of F&B Service department with duties and responsibilities of staff, responsibility of F&B Service department, Attributes of personnel, Equipment and Service ware uses care and maintenance, Types and Layout of F&B Service areas, basic menu knowledge and types of service. (12 Hours)

Module 6 –Menu and types of Service: Basic concept of Menu, restaurant and Coffee Shop Layout, the concept of stations, numbering the tables and covers at a table, reservation systems in restaurants, records & registers maintained by a Restaurant, rules to be observed while laying and waiting at the table, Dos & don'ts of waiting staff in F&B service operations, organizing the staff for service. (12 Hours)

Suggested Readings:

•   Hotel Housekeeping, Sudhir Andrews, Tata McGraw Hill

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• The Professional Housekeeper, Tucker Schneider, VNR

• Professional Management of Housekeeping Operations, Martin Jones, Wiley

• House Keeping Management for Hotels, Rosemary Hurst, Heinemann

• Front office operations by Colin Dix &Chirs Baird

• Hotel Front office management by James Bardi

• Managing front office operations by Kasavana& Brooks

• Food & Beverage Service -Lillicrap& Cousins

• Modern Restaurant Service -John Fuller

• Food & Beverage Service Management-Brian Varghese

• Introduction F& B Service-Brown, Heppner & Deegan

• Professional Food & Beverage Service Management -Brian Varghese

Course: Health Education and Communication

Course Code: GE1B-03

Mode- Offline/ Blended

Course Objective The course is designed to provide basic knowledge about the health and health communication. The students will be able to use information, communication and education across media for the public towards ensuring equitable access to health for both prevention and cure.

Sl	Course Outcome	Mapped modules
1	Explain the concept of health and the knowledge of health education in society.	M1
2	Apply the modern technology in health care sectors.	M2
3	Describe the different model of communication.	M3
4	Develop the communications to the different field of society.	M4
5	Able to use the computer as a tool in health care.	M5
6	Understand how to aware the people about the health.	M6

Module Number	Content	Total Hours	%age of questions	Blooms Level(if	Remarks (If any)

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				applicable)	
M 1	Concept Of Health And Health Education	16	20	L1, L2	
M 2	Health Education & Artificial Intelligence	8	10	L1, L2	
M 3	Heath Communication	10	10	L1, L2	
M 4	Mass communication and role of media	8	10	L1, L2	
M 5	Tools used for communication	8	30	L1, L2	LAB
M 6	Presentation on concept of health and health education	10	20	L1, L2	LAB
		60	100		

Health Education and Communication
Total Credit: 6

Detailed Syllabus:

Module 1- Concept of Health and Health Education: 16h

Definition of physical health, mental health, social health, spiritual health determinants of health, indicatory of health, concept of disease, natural history of diseases, the disease agents, concept of prevention of diseases.

Health Education: Principles & Objectives, Levels of Health Education, Educational Methods, Evaluation & practice of Health Education in India.

Family planning: Demography and family planning: Demography cycle, fertility, family planning, contraceptive methods, behavioural methods, natural family planning methods, chemical methods, mechanical methods, hormonal contraceptives, population problem of India.

Module 2-Health Education & Artificial Intelligence: 8h

Changes in the workforce, Robots, assisting the human experts or completely robotic diagnosis, Medical training: to train paramedical students, AI can play a big role, Virtual health assistants, advanced health research, Clinical and administrative task handling.

Module 3-Heath Communication: 10h

Basic Concept & Principles of Communication, Definition, Purpose, Types of Communication, Communication Process, Directions of Communication: Upward, Downward, Lateral, Factors influencing Communication, Barriers of Effective communication, How to overcome the Barriers Models of communication: Aristotle Model, Shannon and Weaver model, Schramm Model, Laegans Model, Fano Model, Literer's Model, Westly Maclean's Model.

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Module 4- Mass Communication and Role of Media: 8h

Mass communication & Role of Media in health education, Information Communication Technologies (ICT) in health care and awareness. (Telemedicine & e-health, community radio) Future trends in information and communications systems:

Module 5: Tools Used for Communication 8h

Introduction to PC Operating System and MS office package - Windows 10/Ubuntu, MS Office 2016

/ Office360 (MS Word, MS Excel, MS PowerPoint, MS Outlook, Internet and Email)

Module 6: Presentation on Concept of Health and Health Education   10h

Reference Books:

1.Health Education – A new approach – L. Ramachandran & T. Dharmalingan
2.Health Communication in the 21st Century, By Kevin B. Wright, Lisa Sparks, H. Dan O'Hair, Blackwell publishing limited, 2013,
3.Health Communication: From Theory to Practice, By Renata Schiavo, Published by Jossey Bash.
4.Health Communication, R.D. Karma Published by Mohit Publications 2008.
5.Counseling Skills for Health Care Professionals, 1st Edition, Rajinikanth AM, Jaypee Brothers, 20

Course Name-**Sustainability & Fashion**

Course Code-GE**1B-0**4

Mode- Offline/ Blended

Course Outcomes (CO):

Sl	Course Outcome	Mapped modules
1	Remember & Understand Environmental, Sustainable & Ethical issuesbeing faced today and their causes	M1
2	Remember & Understand the Role of sustainable, ethical and environmental organizations	M2
3	Remember & Understand the innovation in sustainable thinking for the future	M3

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4	Remember & Understand the roles and impact designers have on thenatural resources and the environment	M4
5	Remember & Understand the renewable & non-renewable energy	M5
6	Remember & Understand the possibilities in sustainable and ethical fashion	M6

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M1	Environmental & Sustainability Issues	10	20	1,2	
M2	Sustainable & Ethical focused Organizations	8	14	1,2	
M3	Innovations in sustainable thinking for the future	8	14	1,2	
M4	Resource consumption and depletion	8	16	1,2	
M5	Renewable Energy Vs. Non-Renewable Energy	10	16	1,2	
M6	Fashion Design & Sustainability	10	20	1,2	
		60	**100**		

Sustainability & Fashion
Total Credit: 6

Detailed Syllabus:

ModuleI (10 Hours)

Environmental & Sustainability Issues: Climate Change & Global Warming, Pollution, Resource depletion, Consumerism and the throw-away society,

ModuleII (8 Hours)

Sustainable & Ethical focused Organizations, bodies and Agencies: Greenpeace, Earth Day Network, Ethical Fashion Forum, United Nations, Fair Trade, World Wildlife Fund (WWF)

ModuleIII   (8 Hours)

Innovations in sustainable thinking for the future: UN Sustainable Development Goals, The Paris Climate Agreement, Ocean Clean-Up

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Module IV (8 Hours)

Resource consumption and depletion: Deforestation, Fossil Fuels, Sand, Minerals, Precious Stones & Metals

ModuleV (10 Hours)

Renewable Energy Vs. Non-Renewable Energy: Impact of non-renewable i.e. traditional fossil fuel-based energies, Renewable energy systems and technology innovations, Sustainable energy schemes and initiatives in India

ModuleVI (10 Hours)

Fashion Design & Sustainability: Sustainable Fashion design concepts, Sustainable materials for fashion and an understanding of the impacts of our materials choices, Future trends within sustainable fashion, an overview of the key issues the fashion and textiles industry faces, Discussion on the impact of new emerging technologies

Suggested readings:

1.   Introduction to Sustainability Paperback – 2016 by Robert Brinkmann

2.   Sustainability in Interior Design Book by Sian Moxon

3.   References:

1.   Centre for   Sustainable   Fashion-   www.sustainable-2.   MISTRA   Future Fashion- www.mistrafuturefashiofans.choiomn .com

3.   Sustainable Clothing Action Plan: Clothing Knowledge Hub- www.wrap.org.uk/node/19930

4.   Textiles Environment Design- www.tedresearch.net

5.   Textile Futures Research Centre -www.tfrc.org.uk

6.   Sandy Black | The Sustainable Fashion Handbook 2012

Tamsin Blanchard | Green is the New Black: How to Change The World with Style 2008

7.   Michael Braungart and William McDonough | Cradle to Cradle: Remaking the Way We Make Things 2009

8.   Sass Brown | ReFashioned: Cutting Edge clothing from Recycled Materials 2013

9.   Elisabeth Cline | Overdressed: The Shockingly High Cost of Cheap Fashion 2012

10.   Kate Fletcher and Lynda Grose | Fashion and Sustainability: Design for Change 2012

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COURSE: THE YOGA PROFESSIONAL

COURSE CODE:GE1B-05

MODE: OFFLINE/ BLENDED

COURSE OBJECTIVE:

The course is designed to provide understanding about the textual and grammatical aspects of sanskrit language to enable the students to better imbibe the essence of the yogic concepts. The students will be able to interpret the new dimensions of yoga and education and be able to apply principles of yoga for personality development through objectivity.

Sl	Course Outcome	Mapped modules
1	Read and understand the colloquial words of Sanskrit.	M1, M2
2	Write in Sanskrit and have some idea about grammar.	M1, M2
3	Communicate and comprehend Sanskrit to the best of their ability.	M1, M2, M3
4	Understand the Interface between Culture & Psychology.	M4
5	Apply the principles of Culture & Basic Psychological Processes	M5
6	Assess the importance of Culture & Gender interrelation	M6

Module Number	Content	Total Hours	%age of questions	Covered CO	Blooms Level	Remarks(If any)
Module 1	Introduction to reading, writing &speaking of Sanskrit language	10	15	1,2,3	2,3	
Module 2	Grammatical aspects of Sanskrit language	10	15	1,2,3	2,3	
Module 3	Transliteration according to authentic dictionary method	10	10	3	2,3	
Module 4	Interface between Culture & Psychology	10	10	4	2,3	
Module 5	Culture & Basic Psychological Processes	10	30	5	2,3,4,5	
Module 6	Culture & Gender	10	20	6	2,3,5	
		60	100			

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THE YOGA PROFESSIONAL

Total Credit: 6

Detailed Syllabus:

MODULE 01 8L + 2T

Vowels and Consonants, pronunciation, articulation of each letter and the technical names of the letters according to their articulation, similar and dissimilar letters and how to write them.

Consonants combined with vowels, pronunciation and writing, special letters which do not follow the general method.

MODULE 02 8L + 2T

Conjunct letters, rules to combine consonants, special consonants, how Sanskrit articulation can be applied to languages like English, special attention to Anusvara, when it can be written in the form of a nasal, two consonant combinations and three consonant combinations, their writing practice, special conjunct letters and their writing.

MODULE 03 8L + 2T

Transliteration according to authentic dictionary method.

MODULE 04 8L + 2T

Interface between Culture & Psychology Methods of Understanding Culture, Scope of Cultural Psychology, Mechanisms of Cultural Transmission

MODULE 05 8L + 2T

Culture & Basic Psychological Processes Interrelation between Culture, Perception, Cognition Emotional expressions and Culture

MODULE 06 8L + 2T

Culture & Gender, Culture and Gender stereotype

REFERENCE BOOKS:

1.   Dr. Sarasvati Mohan, Sanskrit Level-1 Sharadh Enterprises, Bangalore, 2007.

2.   Dr. Sarasvati Mohan, DVD and CD.(Publication of Akshram and Hindu SevaPrathisthana)

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SEMESTER-2

Paper: SCRIPT TO SCREEN; UNDERSTANDING FILM TECHNOLOGY AND FILM LANGUAGE

Code: BVFM 201

Course Objective: The course is designed to provide and analyse the iconic and monumental moments in produced screenplays from all across the cinematic landscape and address how filmmakers improved or even hindered the written word by examining these three areas: FROM SCRIPT: How It Reads, THE SCENE: How It Looks, TO SCREEN: How It's Improved (Or Not).Through UNDERSTANDING FILM TECHNOLOGY AND FILM LANGUAGE the students will get a clear understanding of film form and film content, basic concepts of film medium like the structure-both at micro and macro levels, relationship of structure, meaning, emotive aspect and value, image construction, and the design in film composition etc.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Understanding various techniques and crafts involved in live-Action film making, Study on Diff. types of film formats. Story development, Script writing, designing characters, Props & Backgrounds for Pre-Production.	8	25		
M 2	Film appreciation, preparing notes, Group discussions on various genes of movies.	7	25		

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M 3	Understanding various formats of cameras(Film & Digital)	5	25		
M 4	Film production Process 1. Pre-Production 2. Production 3. Post-Production Storyboard Design 1. Creating the visual story using thumbnails 2. Shot breakdown, shot types. continuity, camera angles, camera movements 3. Creating Cinematic Storyboard. Photo shoot for story Telling (Conveying story with sample photographs) Stop motion shoot using paper Art as medium.	10	25		
		30	**100**		

Script to Screen; Understanding Film Technology and Film Language
Total Credit: 4
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1-Understanding various techniques and crafts involved in live film making, Study of film formats. Script writing and designing characters.** Everyone loves art in some way or the other. Some like a painting by a painter and some like a movie which is done by 24 distinct fields of artists together. A movie is not a one man show. Neither the director nor the hero is the only one involved in it. There are 24 crafts involved in making a movie. We will make clear of those 24 crafts that every director needs to know before making a movie. In this module students will develop story of their own. How script are done, characters and background development, location, shot planning and developing story boards for each individual shots before going for shoot. The course will guide all the different crafts involved for filmmaker to develop a film.	8
2.	**Module 2- Film Appreciation, preparing notes, Group discussions on various genres of movies:** This course focuses on helping the participants to appreciate cinema by understanding its distinct language, its narrative complexity and the way films control and stimulate our thoughts and feelings.	7

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	Through various examples from Indian and international cinema, the course will explain how cinema as a visual medium, engages with us in constructing meaning. This module will give knowledge on how to analyse a film.	
3.	**Module 3-Understanding various formats of cameras (Film & Digital):** Knowing the categories of cameras available will give the confidence to decide between camera models later And there are countless. The course will provide recommendations for each camera type, and what are the different types of cameras. Understanding different angles of camera and its purpose.	5
4.	**Module 4- Film production Process:** The course gives strong foundation keys to a successful film shoot. Filmmaking involves a number of complex and discrete stages including an initial story, idea, or commission, through screenwriting, casting, shooting, sound recording and **pre**-production, editing, and screening the finished product before an audience that may result in a film release and an exhibition. The major steps are as following. ● **Story Development** ● **Pre-Production** ● **Production** ● **Principle of Photography** ● **Wrap** ● **Post-Production** ● **Distribution**	10

Suggested Reading:

1. Five C s of Cinematography by Joseph V. Mascelli
2. Motion Picture Filming Techniques by Joseph V.Ma skelly
3. The Filmmaker's Handbook by Ed Pincus
4. Making Movies by Sidney Lumet
5. From script to Screen by Linda Segre
6. Storyboarding: Turning Script to Motion by Stephanie Torta · Vladimir Minuty

Paper: SCRIPT TO SCREEN; UNDERSTANDING FILM TECHNOLOGY AND FILM LANGUAGE Lab

Code: BVFM 291

Course Objective: The course is designed to provide and analyse the iconic and monumental moments in produced screenplays from all across the cinematic landscape and address how filmmakers improved or even hindered the written word by examining these three areas: FROM SCRIPT: How It Reads, THE SCENE: How It Looks, TO SCREEN: How It's Improved (Or Not).Through UNDERSTANDING FILM TECHNOLOGY AND FILM LANGUAGE the students will get a clear understanding of film form and film content, basic concepts of film medium like the

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structure-both at micro and macro levels, relationship of structure, meaning, emotive aspect and value, image construction, and the design in film composition etc.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Visualizing concepts and contents**	10	40		
M 2	**Designing Models**	10			
M 3	**Creating the story Script**	10	40		
M 4	**Visualizing & Creating Cinematic Storyboard**	10			
		40	**80**		

Script to Screen; Understanding Film Technology and Film Language Lab
Total Credit: 2
Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1-Visaulizing concepts and contents:** Writing down different concepts and idea to from a story. Students have to develop outline of ideas and develop their own stories.	8
2.	.**Module 2- Creating the story Script:** Creating script and screenplay with the story .	10
3.	**Module 3- Designing Models:** Designing characters for the story Draw basic characters and character model sheets with expressions, key poses Background Design- Environments	10

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4.	**Module 1-Visaulizing & Creating Cinematic Storyboard:** • Storyboard Design – Creating Visual story using thumbnails • Creating a storyboar**d** • **Creating pre-viz**	12

Suggested Reading:

1. Five C s of Cinematography by Joseph V. Mascelli
2. Motion Picture Filming Techniques by Joseph V.Ma skelly
3. The Filmmaker's Handbook by Ed Pincus
4. Making Movies by Sidney Lumet
5. From script to Screen by Linda Segre
6. Storyboarding: Turning Script to Motion by Stephanie Torta · Vladimir Minuty

Paper: GRAPHIC DESIGN, AUDIO & VIDEO EDITING

Code: BVFM 202
Course Objective: The course is designed to provide an introduction to the fundamental aspects of graphic design using design methodologies to solve user-centric problems. Students will be able to develop an in- depth understanding of processes to help create better design workflows using graphical representations.

Course Outcome	**Mapped modules**
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)

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M 1	Introduction to Graphic Design	4	10		
M 2	Designing (Photoshop, Illustrator, Indesign)	10	40		
M 3	Fundamentals of Motion Graphics	10	25		
M 4	Fundamentals of Audio & Video Editing	6	25		
		60	**100**		

Graphic Design, Audio & Video Editing
Total Credit: 4
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1-Introduction to Graphic Design:** - A comprehensive introduction to the essentials and principles of Design. Articulating design, the brief, sources of inspiration, design as problem solving, creative thinking, wit and humor - Raster & Vector Graphics- RGB vs. CMYK - Color theory - Typography - Layers of meaning, development and experimentation, art direction, commissioning art, print, direct mail, information design, packaging, screen design, environmental design, self-promotion, portfolios, basic tools, specialist color, file formats, print finishing.	4
2.	**Module 2- Designing (Photoshop, Illustrator, and InDesign):** - Introduction to Photoshop, basics- workspace, finding and managing creative tools and content. Lines, shapes and objects. Working with layers, linking and embedding objects. Managing projects, color, fills and transparencies, filling objects. Special effects, templates and styles, pages and layout, bitmaps, printing, file formats, customizing and automating. - Introduction to Digital Painting. - Introduction to adobe illustrator, work area of illustrator, selecting and aligning, creating and editing shapes, transforming objects, drawing with pen and pencil tools, color and painting, working with type, working with layers, working with perspective drawing, blending colors and shapes, working with brushes, applying effects, applying appearance attributes and graphic styles, working with symbols, combining illustrator with other adobe applications. - Preparing graphics for web and print - Introduction to InDesign – Tools and techniques - Understanding Publication elements - Essentials in publication design - Study of various publication designs	10
3.	**Module 3- Fundamentals of Motion Graphics:**	10

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	• Instrumental Techniques used by professional motion graphic designers. • Introduction to After effects - About Composition, Solid layer, Shape layer, Text animation, Hud Effects, Info graphics Motion graphics • Create Motion Graphics to enhance your videos using a step by step, easy-to-use method. • How to Import and animate Illustrator Vector Graphics. • Master Visual Time Effects on Videos and Motion Graphics. • Practice compositing techniques to achieve stunning video effects. • Work in 3D space with Cameras, Lights and Shadows and practice your new skills with 3D Motion Graphics Projects. • Create advanced Type Animation in 2D & 3D – cool stuff only in After Effects.	
4.	**Module 4- Fundamentals of Audio & Video Editing:** • Introduction to Adobe Premiere – tools and essentials • Edit an entire video from beginning to end, and make them more dynamic with cutaway footages and photos. • color correct the video and fix issues with white balance and exposure, add feeling with color grading, edit green screen footage and add backgrounds • Apply visual effects such as stabilizing shaky video, removing grain and making it more cinematic. • Reduce background noise, add music tracks, capture sound effects, use a variety of effects to enhance audio and add in/out fades. • Editing from the Bin- Cutting down Your Sequence - Navigating the Timeline-Thinking Nonlinearly - Trimming Fundamentals - Methods of Trimming - Types of Trim Importing and Exporting Motion Video, Types of Effects -Effect Design - Rendering – Key frames	6

Suggested Softwares: Adobe Photoshop
Adobe Illustrator
Adobe InDesign
Adobe Premier
Adobe After Effects
Adobe Audition

Suggested Reading:

1. Adobe Photoshop CC Classroom - Andrew Faulkner

2. Adobe Illustrator CC Classroom - Andrew Faulkner

3. Adobe Premier CC Classroom - Andrew Faulkner

4. Create Motion Graphics with After Effects – Chris Meyer & Trish Meyer

5. Creative Workshop : 80 challenges to sharpen your Design Skills - David Sherwin

6. The Non-Designers Design Book - Robin Williams

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Code: BVFM 292

Course Objective: The course is designed to provide an introduction to the fundamental aspects of graphic design using design methodologies to solve user-centric problems. Students will be able to develop an in- depth understanding of processes to help create better design workflows using graphical representations.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Introduction to Graphic Design	5	40		
M 2	Designing (Photoshop, Illustrator, Indesign)	15			
M 3	Fundamentals of Motion Graphics	10	40		
M 4	Fundamentals of Audio & Video Editing	10			
		40	**80**		

Graphic Design, Audio & Video Editing Lab
Total Credit: 2
Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Design** • Making layouts . manual logo designs • Creating Vector Illustrations	5

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2.	**Module 2- Designing (Photoshop, Illustrator, and InDesign):** <u>**DESIGN CONTENT-**</u> Advertisement Design, Poster Design, Invitation design, Corporate Identity Logo, Designing Letterhead, Envelope, Business Card, Branding Designs, Product Packaging Design	15
3.	**Module 3- Fundamentals of Motion Graphics:** • Create Motion Graphics Using Illustrator Vector Graphics for animation • Master Visual Time Effects on Videos and Motion Graphics. • Practice compositing techniques to achieve stunning video effects. • Work in 3D space with Cameras, Lights and Shadows and practice your new skills with 3D Motion Graphics Projects. • Create advanced Type Animation in 2D & 3D	10
4.	**Module 4- Fundamentals of Audio & Video Editing:** • Edit an entire video from beginning to end, and make them more dynamic with cutaway footages and photos. • color correct the video and fix issues with white balance and exposure, add feeling with color grading, edit green screen footage and add backgrounds • Apply visual effects such as stabilizing shaky video, removing grain and making it more cinematic. • Reduce background noise, add music tracks, capture sound effects, use a variety of effects to enhance audio and add in/out fades. • Editing from the Bin- Cutting down Your Sequence - Navigating the Timeline- Thinking Nonlinearly - Trimming Fundamentals - Methods of Trimming - Types of Trim Importing and Exporting Motion Video, Types of Effects -Effect Design - Rendering – Key frames	10

Suggested Softwares: Adobe Photoshop
Adobe Illustrator
Adobe InDesign
Adobe Premier
Adobe After Effects
Adobe Audition

Suggested Reading:

1. Adobe Photoshop CC Classroom - Andrew Faulkner

2. Adobe Illustrator CC Classroom - Andrew Faulkner

3. Adobe Premier CC Classroom - Andrew Faulkner

4. Create Motion Graphics with After Effects – Chris Meyer & Trish Meyer

5. Creative Workshop : 80 challenges to sharpen your Design Skills - David Sherwin

6. The Non-Designers Design Book - Robin Williams

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Paper: ENGLISH COMMUNICATION

Code: BVFM203

Course Objective: The course is designed to   develop the student's communicative competence in English by giving adequate exposure in the four communication skills - LSRW - listening, speaking, reading and writing and the related sub-skills, thereby, enabling the student to apply the acquired communicative proficiency in social and professional contexts.

Course Outcome	Mapped modules
Remembering	M1,
Understanding the course	M1, M2
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Functional grammar & Vocabulary	2	10	1,2	
M 2	Reading Skills	2	20	1,2	
M 3	Writing Skills	8	40	2,3,4,	
M 4	Listening & Speaking Skills	8	30	2,3,4	
		20	**100**		

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English Communication
Total Credit: 2
Total hours of lectures: 20 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Functional Grammar & Vocabulary:** Tense: Formation and application; Affirmative / Negative / Interrogative formation; Modals and their usage; Conditional sentences; Direct and indirect speech; Active and passive voice; usage of common phrasal verbs, synonyms & antonyms.	2
2.	**Module 2- Reading Skills:** Comprehension passages; reading and understanding articles from technical writing. Interpreting texts: analytic texts, descriptive texts, discursive texts; SQ3R reading strategy.	2
3.	**Module 3- Writing Skills:** Writing business letters - enquiries, complaints, sales, adjustment, collection letters, replies to complaint & enquiry letters; Job applications, Résumé, Memo, Notice, Agenda, Reports – types & format, E-mail etiquette, advertisements.	8
4.	**Module 4- Listening & Speaking :** Listening: Listening process, Types of listening; Barriers in effective listening, strategies of effective listening Speaking: Presentations, Extempore, Role-plays, GD, Interview	8

Suggested Reading:

1. Bhatnagar, M & Bhatnagar, N (2010) Communicative English for Engineers and Professionals. New Delhi: Pearson Education.

2. Raman, M & Sharma, S (2017) Technical Communication. New Delhi: OUP.

3. Kaul, Asha (2005) The Effective Presentation: Talk your way to success. New Delhi: SAGE Publication.

4. Sethi, J & Dhamija, P.V. (2001), A Course in Phonetics and Spoken English. New Delhi: PHI.

5. Murphy, Raymond (2015), English Grammar in Use. Cambridge: Cambridge University Press.

6. R.C. Sharma and K.Mohan Business Correspondence and Report Writing Tata McGraw Hill , New Delhi , 1994

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Course Name: Cinema and Other Arts

Course Code: GE2B-01

Mode: Offline/ Blended

Course Objective: The course is designed to provide a general understanding and appreciation of the history of world cinema, acclaimed international films, artists, and movements. The students will be able to gain a multiple cultural perspective based on the underlying theories and principles of cinema and media.

Sl	Course Outcome	Mapped modules
1	Understand the fundamental components of a Cinema and otherarts	M1, M2, M3, M4, M5, M6
2	Remember the readings and understand the perspective	M1, M2
3	Understand the nuances of modern painting	M2, M3
4	Understand the nuances of Indian painting	M2, M3, M4
5	Understand and examine the Indian and Western music	M1, M2, M5
6	Analyze the music of parallel and commercial Indian cinema	M1, M2, M5, M6

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
Module 1	Pre-Renaissance	10	15	L1, L2	
Module 2	Renaissance and Perspective	10	15	LI, L2	
Module 3	Modern Painting	08	15	L1, L2	Workshop
Module 4	Indian Painting	08	15	L1, L2	Workshop
Module 5	Fundamentals of music	12	15	L2, L3	Workshop
Module 6	Music and cinema	12	25	L2, L3	Workshop
		60	100		

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Cinema and Other Arts.
Total Credit: 6
Total hours of lectures: 60 hours

Detailed Syllabus:

M1	**Pre-Renaissance**: Visual representations in cave paintings, in folk cultures and early civilizations like Egypt Visual representations in Greece: A breakaway from earlier practices Visual representations in ancient and medieval India: Ajanta cave paintings,Mughal miniature, Kangra, Ragmalaetc
M2	**Renaissance and Perspective** The Renaissance at a Glancefrom The Enquiring Eye – European Renaissance Art, Development of the idea of perspective; Use of camera obscura and camera lucida Selected Readings from John Berger's Ways of Seeing, Dutch painting; Baroque, Rococo and Mannerism.
M3	**Modern Painting:**Impressionism, Expressionism, Surrealism, Cubism
M4	Indian Painting Raja Ravi Verma, Bengal School Contemporary Masters
M5	Fundamentals of music: Tone, note, key, octave, musical scales – diatonic and tempered scales, chords, melody, harmony, swar and shruti Folk music, forms and structures of Indian classical music, forms and structures of western classical music; Evolution of musical forms; Music industry and popular music; Urban folk music, Blues, Jazz, Rock
M6	Music and cinema; Music for Cinema Comparison of the two art forms – music and cinema; Ray and Ghatak's ideas on structural similarities of music and cinema Analysis of structures of films to compare with musical forms Musical accompaniment of films – from live musical accompaniment of silent era to present day. Diagetic and extra-diagetic music Analysis of music tracks of selected films Electronic Vs acoustic musical accompaniment (Has to be done as a workshop by a music composer) Item numbers of Bollywood films

Suggested Readings:

1. Andrei Tarkovsky, Sculpting in Time

2. Satyajit Ray, Our Films Their Films

3. RitwikGhatak, Rows and Rows of Fences

4. Penguin Dictionary of Music

5. S.C Deva, Music of India

6. E.H Gombirch, The Story of Art, Phaidon Publications

7. Hendrik Willen Van Loon, The Arts of Mankind

8. Hugh Honour and John F. Fleming, The Visual Arts: A History. Prentice Hall, 2005. Sylvan Barnet,A Short Guide to Writing About Art. Prentice Hall, 2007.

9. The Enquiring Eye – European Renaissance Art (National Gallery of Art, Washington)

10. Herbert Read The Meaning of Art 11. Walter Pater The Renaissance

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12. John Berger, Ways of Seeing

13. Art Through the Ages by Helen Gardner

14. Nothing If Not Critical: Selected Essays on Art and Artists

15. The Story of Painting by Wendy Beckett

16. Minor: Art Historys History _p2 by Vernon Hyde Minor

17. Isms: Understanding Art by Stephen Little

18. The Visual Arts: A History by Hugh Honour

19. What Are You Looking At: 150 Years of Modern Art in a Nutshell by Will Gompertz

20. Art and Illusion: A Study in the Psychology of Pictorial Representation by E.H. Gombrich

Course Name: Surface & Soft Furnishings Design Development Techniques

Course Code- GE2B-02

Mode-Offline/ Blended

Course Objective:The course is designed to provide a conceptual understanding of interior design of spaces with surface and soft furnishings. The students will be able to visually express with colour, texture, pattern and material effects for surface design appropriate to project specifications.

Sl	Course Outcome	Mapped modules
1	Understand the fundamental interior design aspects of surface and soft furnishings	M1, M2, M6
2	Understand the fundamentals of textiles and types	M1, M2
3	Understand and demonstrate printing techniques	M2, M3
4	Understand the apply embroideries	M2, M3, M4
5	Understand and examine materials, techniques, and technology	M1, M2, M5
6	Apply the surface designs	M5, M6

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
Module 1	Textiles and Its Types	08	15	L1, L2	
Module2	Research soft furnishings and textiles/fabrics used in the design	08	15	L1, L2	

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Module 3	Printing and its techniques	10	15	L1, L2	
Module 4	Embroideries and its types	10	15	L1, L2	
Module5	Exploration of materials, techniques and technologies for the development of surface design	12	15	L2, L3	
Module6	Final surface designs and presentation	12	25	L3	
		60	100		

Surface & Soft Furnishings Design Development Techniques
Total Credit: 6
Total hours of lectures: 60 hours

Detailed Syllabus:

Module -1: Textiles and Its Types

Introduction to textiles – Indian (kalamkari, matanipachedi, ikkat) and international textiles.

Special embellishment techniques: Batik, Tie and dye - lehariya, bandhini ,shibori, sunray and marbling.

Module – 2: Research soft furnishings and textiles/fabrics used in the design

Table Linens

Rugs & Carpets

Window dressings (Curtains & Blinds)

Towels

Bedding & Bedspreads

Cushions & Throw

Lampshades

Wallpaper

Tiles

Flooring

Module -3: Printing and its techniques

Print application through block printing, Lino printing, Wood cut printing, Lithograph printing

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Print application through screen & block printing (vegetable block and wooden blocks, Appliqué, quilting, Smocking, honey comb, Fabric painting, Stencil- dabbing and spraying).

Natural dyeing techniques and explorations.

Module -4: Embroideries and its types

Basic Hand Embroidery, their technique, variations and applications. Basic running stitch, backstitch, stem stitch, chain stitch, lazy daisy stitch, buttonhole stitch, featherstitch, herringbone stitch, knot stitch, satin stitch and cross-stitch.

Traditional Embroidery- Origin, application &colours. Kantha, Chikan, Kasuti, Zardosi, Kutch and Mirror work.

Module -5: Exploration of materials, techniques and technologies for the development of surface design

Print – Screen, Block, Mono etc.

Stenciling

Fabric Dye (Natural and Azo free)

Fabric paints

Fabric and textiles Embellishment

Module -6: Final surface designs and presentation

Develop surface designs for a range of applications.

Reference Books:

The Complete Technology Book on Dyes & Dye Intermediates Paperback – 1 Jan 2003 by NIIR Board of Consultants & Engineers (Author)

Biodegradation of Azo Dyes by HaticeAtacagErkurt (Editor) – Publisher: Springer (9 August 2010), ISBN-10: 3642118917

Second Skin: Choosing and Caring for Textiles and Clothing by India Flint Murdoch Books, 2011 ISBN 978-1-74196-720

Indigo:The Color that Changed the World by Catherine Legrand Thames & Hudson, 2013 ISBN 978- 0500516607

Warp and Weft:

Woven Textiles in Fashion, Art and Interiors by Jessica HemmingsBloomsbury, 2012 – ISBN 978-1-4081-3444-3

Quilt National 2013:The Best of Contemporary Quilts by The Dairy Barn Cultural Arts Center

DragonThreads Extraordinary Textile Arts Books, 2013 - ISBN 978-0-9818860-4-6

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Surface Design for Fabric: Studio Access Card Printed Access Code – February 15, 2015 by Kimberly Irwin Publisher: Fairchild Books (February 15, 2015) ISBN-10: 1501395033

Websites

https://www.houseology.com/masterclass/design-school/chapter-eight-soft-furnishings
https://www.twosistersecotextiles.com/pages/azo-dyes

Paper: ADVERTISING

Code: GEB203

Course Objective: The course is designed to provide an introduction to the fundamental aspects of graphic design using design methodologies to solve user-centric problems. Students will be able to develop an in-depth understanding of processes to help create better design workflows using graphical representations.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Advertising	6	25		
M 2	Marketing Communication Models	8	25		
M 3	Creative planning	8	25		
M 4	Advertising Agency	8	25		
		30	100		

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ADVERTISING
Total Credit: 4
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Advertising** • Definition • History • Function • Classification • Objective • Market Segmentation: Behaviouristic, Geographic, Demographic and Psychographic.	6
2.	**Module 2- v Marketing Communication Models** • AIDA, AIDAS, IEEO, DAGMAR, PLC and its relation with advertising, • Advertising Medias • Media Planning and Scheduling • Advertising Campaign	8
3.	**Module 3- Creative Planning** • Idea and Concept • Writing advertising copy • Advertising style and strategy • Colour Scheme • Typography.	8
4.	**Module 4- Advertising Agency** • Role of Advertising Agency • Ethics in Advertising • Role of ASCI.	8

References/Suggested Readings:

1. Frank Jefkins, Advertising Made Simple, Rupa& Co.

2. David Ogilvy. Confessions of an Advertising Man. Southbank Publishing, 2011.

3. David Ogilvy. Ogilvy on Advertising. Prion Publishing Group. 2011

4. Jaishri N Jethwaney . Advertising. Phoenix publishing House Pvt. ltd. 1999

5. Chunawalla , Advertising Theory And Practice, Himalaya Publishing House.

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Code: GEB293

Course Objective: To develop skills to create effective Advertising for various Media. To become an advertising professional.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Introduction to visual Thinking	6	40		
M 2	Hard Sell & Soft Sell Advertisement	10			
M 3	Social Advertisement	10	40		
M 4	Shooting for making commercial goods advertisement	14			
		40	**100**		

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ADVERTISING Lab
Total Credit: 2
Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Introduction to visual thinking** - Visualizing an Advertisement - Case Study 1. - Visualization approach: Direct or Indirect approach, Color Scheme, Visualization styles Unusual illustration, Before and After strategy. Use of Testimonials, Special layout style	6
2.	**Module 2- Hard Sell & Soft Sell Advertisement** - Hard sell Advertisement: Visualizing, creating copy and visuals for Hard sell advertising - Soft sell Advertisement: Visualizing, creating copy and visuals for Soft sell advertising.	10
3.	**Module 3- Social Advertisement** - Visualizing, creating copy and visuals for Social advertising. - Humorous Advertisement: Visualizing, creating copy and visuals for Humour based advertising in Print media.	10
4.	**Module 4- Shooting for making a Commercial goods Advertisement** - Visualizing and shooting the visuals for Commercial goods advertisement. Commercial goods Advertisement - Creating copy and visuals for a Commercial goods Advertisement.	14

References/Suggested Readings:

1. James Webb Young——― A Technique for Producing Ideas‖, Stellar Editions.

2. Robert W. Bly——―The Copywriter's Handbook: A Step-By-Step Guide To Writing Copy That Sells, Holt Coursebacks.

3. Victor O. Schwab——―How to Write a Good Advertisement‖, Golden Springs Publishing

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<u>**SEMESTER-3**</u>

Paper: CLAY MODELLING & CG MODELLING

Code: BVFM 301

Course Objective: Here the students would learn the techniques and tools that can help you approach modelling nearly any shape with confidence. They would learn basics such as selecting and manipulating objects, organizing scenes, and customizing the interface. Next, review polygonal modelling, creating and refining meshes, sculpting, and NURBS modelling. It starts with an overview of modeling basics, before moving on to creating some specific models of a chair, a side table, and several other small room objects like walls, floors, books, bookshelves, and picture frames. Finally, he puts the whole room together by cleaning up all the files, importing the individual files into a single file, and adding the final camera shot, creating a toon character etc.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Clay Modeling & Introduction about the 3D software**	6	25		
M 2	**Polygonal Modelling**	7	25		
M 3	**NURBS Modelling**	7	25		
M 4	**Sub Division Modelling**	10	25		
		30	**100**		

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CLAY MODELLING & CG MODELLING
Total Credit: 4
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Clay Modeling & Introduction about the 3D Enviornment** • Focuses on modelling characters with different types of clay. Clay models are used to improve visualization while modelling 3D digital characters. Use overlaying modelling to feel and understand the anatomy, proportions and depth of the model. • Maya Introduction and Interface – Difference between World, Local and Object Co-ordinate system • Knowing about file importing, exporting and execution and applying references to the files. • Creating a project file in Maya	6
2.	**Module 2- Polygonal Modelling** • Concepts, Advantages and Disadvantages of Poly modelling, • Creating polygon primitive objects • Polygon components and menu • Booleans, Combining and separating polygons • Building and Editing Poly models • Splitting and sub-dividing polygons • Extruding polygons, Merging vertices, Bevel • Sculpt Polygon • Maya Node System and Linking, Grouping.(Parenting and unparenting)	7
3.	**Module 3- NURBS Modelling** • Concepts, ,Advantages and Disadvantages of Poly modelling • Creating NURBS primitive objects, Creating NURBS curves • NURBS components, Editing NURBS surfaces • Lofting and extruding curves to create surfaces, attaching and detaching surfaces • Revolving, attaching and detaching curves, • Socking • Stitching surfaces	7
4.	**Module 4- Sub Division Modelling** • Concepts • Converting polygon to Sub-D, Sub-D commands • Topology • Hierarchy	10

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	• Mirror,attach	
	• Clean up of model files	
	• Finalizing model	

Suggested Software – Autodesk Maya

Suggested Reading:

1. Autodesk Maya 2018 by [Ticked Sham](#)
2. Mastering Autodesk Maya 2017 by Eric Keller.
3. Introducing Maya 2017 by Dariush Derakhshani.
4. Maya 8 Character Modeling by Gary Oliverio, Jones and Bartlett Publishers, 2006
5. Advanced Maya: Character Modeling by Kenny Cooper and Jim Lammers, Trinity Animation, Inc.2003
6. Jason Patnode, Character Modeling with Maya and ZBrush: Professional polygonal modeling techniques, Focal Press; Pap/Dvdr edition, 2008

Paper: CLAY MODELLING & CG MODELLING Lab

Code: BVFM 391

Course Objective:

- To gain good knowledge to create 3d character modeling.
- To apply experimental production techniques to animation and game creation

Course Outcome	**Mapped modules**
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Clay Modeling & Introduction about the 3D**	6	40		

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	software				
M 2	**Polygonal Modelling**	12			
M 3	**NURBS Modelling**	12	40		
M 4	**Sub Division Modelling**	10			
		40	**100**		

CLAY MODELLING & CG MODELLING Lab
Total Credit: 2
Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Clay Modelling** • Hands on sessions modelling objects with clay • Creating small models from polymer clay, • Learning the art of sculpting • Showing video tutorial about Maya introduction and interface.	6
2.	**Module 2- Polygon modeling** • Making an exterior - landscape, garden, cityscapes, monuments, bridges, fences, • Modelling interiors (different kinds and styles of rooms)	12
3.	**Module 3- Nurbs modeling** • Creating bathroom/living room/ kitchen with props – as table , vase etc. • Creating an oil can using sub-D •	12
4.	**Module 4- Toon character** • Modelling a toon character/human/4 legged	10

Suggested Software – Autodesk Maya
Suggested Reading:

1. Autodesk Maya 2018 by Ticked Sham
2. Mastering Autodesk Maya 2017 by Eric Keller.
3. Introducing Maya 2017 by Dariush Derakhshani.
4. Maya 8 Character Modeling by Gary Oliverio, Jones and Bartlett Publishers, 2006
5. Advanced Maya: Character Modeling by Kenny Cooper and Jim Lammers, Trinity Animation, Inc.2003
6. Jason Patnode, Character Modeling with Maya and ZBrush: Professional polygonal modeling techniques, Focal Press; Pap/Dvdr edition, 2008

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Paper: TEXTURING

Code: BVFM 302

Course Objective: This course will focus on learning the UV Basics, tiling textures, Scaling Texture, creating bump, specular, and normal maps. The learning will also be based on image manipulation features in Photoshop to build 3D textures and then moving to Substance Painter, which is widely used in studios. The course would emphasise on creating procedural textures that are applied back in Maya. The course provides hands-on practice and a solid workflow that will help you texture almost any object you encounter in the future.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Material and Shaders**	8	25		
M 2	**UV s**	4	25		
M 3	**Texturing using Photoshop**	6	25		
M 4	**Texturing using Substance Painter**	12	25		
		30	**100**		

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TEXTURING

Total Credit: 4

Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Material and Shaders** • Overview of Maya Rendering • Introduction to hypershade • Understanding the basic shader types • Work with Arnold materials • Opacity and Refraction in Arnold • Create and apply maps • Using bitmaps as textures • Working with hypershade window • Create materials in hypershade	8
2.	**Module 2- UV s** **Module 2- UV s** • UV Mapping Techniques- Understanding UV's, editing UV's and using mapping projections on polygon surfaces, planer mapping, cylindrical mapping, spherical mapping, automatic mapping, working with UV texture editor window • UNWRAPPING UV'S- Understanding unwrapping, unwrapping props and characters to facilitate texture painting, relaxing and unfolding UV's, split UV's, creating UV sets	4
3.	**Module 3- Texturing using Photoshop** • Creating Textures in photoshop • Review Reference Materials • Tile Textures • Creating maps – Bump, Diffuse, Specular, Normal.	6
4.	**Module 4- Texturing using Substance Painter** • Interface & Creating a project • Baking Maps/Textures • Creating & Applying Material • Modifying Channels • Using the Transform tools,Projection modes and Anchors • Using the painting tools • Working with layer effects • Rendering and Exporting Textures • Applying textures from Substance to Maya	12

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Suggested Software – Autodesk Maya
Adobe Photoshop
Substance Painter

Suggested Reading:

1. Autodesk Maya 2018 by Ticked Sham
2. Mastering Autodesk Maya 2017 by Eric Keller.
3. Introducing Maya 2017 by Dariush Derakhshani.
4. Beginning PBR Texturing: Learn Physically Based Rendering with Allegorithmic's Substance Painter – Abhishek Kumar
5. Advanced Maya Texturing and Lighting – Lee Lanier

Paper: TEXTURING Lab

Code: BVFM 392

Course Objective: This course will focus on learning the UV Basics, tiling textures, Scaling Texture, creating bump, specular, and normal maps. The learning will also be based on image manipulation features in Photoshop to build 3D textures and then moving to Substance Painter, which is widely used in studios. The course would emphasise on creating procedural textures that are applied back in Maya. The course provides hands-on practice and a solid workflow that will help you texture almost any object you encounter in the future.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

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Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Material and Shaders**	10	40		
M 2	**UV s**	8			
M 3	**Texturing using Photoshop**	8	40		
M 4	**Texturing using Substance Painter**	14			
		40	**80**		

TEXTURING Lab
Total Credit: 2
Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Material and Shaders** • Overview of Maya Rendering • Understanding the basic shader types • Work with Arnold materials • Opacity and Refraction in Arnold • Create and apply maps • Using bitmaps as textures • Working with hypershade window • Create materials in hypershade	10
2.	**Module 2- UV s** • unwrapping props and characters to facilitate texture painting, relaxing and unfolding UV's, split UV's, creating UV sets • Applying texture maps to the polygon surfaces by unwrap tool with basic uv tools and to assign 2d and 3d projections .	8
3.	**Module 3- Texturing using Photoshop** • Textures 2d and 3d projections and utilities • Creating Brick textures • Wood textures • Texturing a prop • Creating Maps	8

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4.	**Module 4- Texturing using Substance Painter** • Texturing an oil can /weapon/prop in substance Painter • Texturing a Lamp Shade/Light bulb • skin texture/ plastic/ wood/leather	14

Suggested Software – Autodesk Maya
　　　　　　　　　　Adobe Photoshop
　　　　　　　　　　Substance Painter

Suggested Reading:

1. Autodesk Maya 2018 by Ticked Sham
2. Mastering Autodesk Maya 2017 by Eric Keller.
3. Introducing Maya 2017 by Dariush Derakhshani.
4. Beginning PBR Texturing: Learn Physically Based Rendering with Allegorithmic's Substance Painter – Abhishek Kumar
5. Advanced Maya Texturing and Lighting – Lee Lanier

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Paper: RIGGING & 3D ANIMATION

Code: BVFM 303

Course Objective: Rigging is a crucial step in character development and animation. This course introduces the rules of rigging—good geometry, organization, and controls—and shows how to create joints, constraints, and connections. This course then dives into a real-world project, taking a model and building out the skeleton and the leg, foot, body, and hand controls required for effective animation. It also devotes a chapter to FK/IK switching for finer control over arm movement.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Introduction to Rigging**	5	25		
M 2	**Rigging Basics**	10	25		
M 3	Introduction to 3D Animation & Principles of Animation	10	25		
M 4	Basic 3D Animation	5	25		
		32	100		

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RIGGING & ANIMATION
Total Credit: 4
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Introduction to Rigging** • Understanding the anatomy • Model Clean up • Nomenclature • Requirements for a clean Model, • Parenting and grouping objects using point, orient, parent constrains • Creating controllers, set driven keys etc.	8
2.	**Module 2- Rigging Basics** • Setting up the character • Creating Skeletons - Drawing the spine, leg chains, hand skeletons. • Creating joints, editing joints, parenting joints, orienting joints • Creating hierarchical structures and skeletons for biped characters • Using IK solvers on skeletons, blending FK and IK • Binding skeletons to character mesh • Painting skin weights, editing skin weights Adding influence objects and muscles • Creating facial setups, blend shape deformers	8
3.	**Module 3 – Introduction to 3D Animation & Principles of Animation** • Understanding all 12 principles of animation how the principles work in 3D Animation. • Theory on types of animations difference between 2D and 3D animation, know about Restriction and thumb rules of 3D animation. • Understanding animation films and Live Action Movies, Importance and difference between object and character motion. • Understanding Animation Tools in Autodesk Maya.	8
4.	**Module 4 – Basic 3D Animation** • Understanding timing and spacing, know about timeline and keying, knowing about key frame animation. • Understanding Taking reference for animation, knowing about graph editor and how to control key frame animation via graph editor. • Understanding the weights and balances of primitive object motions. • Knowing animation with multiple primitive objects as the both get co-ordinates in motion as if combination in motion.	8

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Suggested Software – Autodesk Maya

Suggested Reading:

1. Autodesk Maya 2018 by Ticked Sham
2. Mastering Autodesk Maya 2017 by Eric Keller.
3. 3D Animation for the Raw Beginner using Maya by Roger King
4. 3D Animation Essentials by Andy Bean
5. Introducing Maya 2017 by Dariush Derakhshani.
6. **Body Language: 3D Character Rigging Book by Eric Allen and Kelly L. Murdock**

Paper: RIGGING & 3D ANIMATION Lab
Code: BVFM 393

Course Objective: This paper will focus on understanding the different kinds of lights and light set-up in a Maya Scene. This course is an introduction where you should be able to perform basic 2D and 3D visual effects compositing with Nuke. In this section, you can learn about Nuke channels, node trees, and keyframe animation and get an overview of the compositing workflow. You will also get introduced to 2D compositing: image transformations, color correction, rotoscoping, keying, timing adjustments, and tracking. Similarly, you can expand your skills into 3D: working with lights and cameras, transforming and deforming 3D geometry, applying materials and textures, and rendering.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)

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M 1		10	40		
M 2		10			
M 3	Introduction to 3D Animation & Principles of Animation	5	40		
M 4	Basic 3D Animation	15			
		30	**80**		

RIGGING & 3D ANIMATION Lab
Total Credit: 2
Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Constrains, character setups** • Creating skeleton for tree and basic human body	6
2.	**Module 2- Creating Skeletons and Skinning** • Binding Tree and basic human body with painting skin weights • Adding controllers and linking with custom attributes	14
3.	**Module 3 – Introduction to 3D Animation & Principles of Animation** • Explanation of all principles with different video, working with different Live objects (e.g. - different types of balls plastic,rubber,iron) • Watching and taking live reference from different types of animation movies & live action movies. • Working with Basic rigged Object, learning about different Animation tools in Autodesk maya.	10
4.	**Module 4 – Basic 3D Animation** • Working with basic rigged object, working with frame keys, knowing spacing and timing while doing key animation. • Working with rigged object to know about Graph editor, using different type of graph tangent (e.g., liner tangent, spline tangent etc.) • Working with Ball bounce animation with principle like timing and spacing, stretch and squash applicable to it to create a believable ball bounce, working with different types of balls (e.g - rubber ball,iron ball etc.) • Create a Simple Pendulum swing with follow through and overlapping principles. • Multiple object interaction • Basic Character walk cycle	10

Suggested Software – Autodesk Maya

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Suggested Reading:

1. Autodesk Maya 2018 by Ticked Sham
2. Mastering Autodesk Maya 2017 by Eric Keller.
3. Introducing Maya 2017 by Dariush Derakhshani.
4. 3D Animation for the Raw Beginner using Maya by Roger King
5. Body Language: 3D Character Rigging Book by Eric Allen and Kelly L. Murdock
6. 3D Animation Essentials by Andy Bean
   Animators Survival Kit

Paper: Soft Skill Development

Paper Code : BVFM 304

Course Objective – .The objective of this Skill Certification Scheme is to enable the students to take up industry-relevant skill training that will help them in securing a better livelihood. It will help one **Learn** to communicate, listen, and work well with team members and peers. **Think** critically as a problem solver.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

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Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Personal Skills and Social Skills**	5	25		
M 2	**Team Building and Art of Negotiation**	5	25		
M 3	**Personality Development and Interview Techniques**	5	25		
M 4	**Presentation Skills**	5	25		
		20	**100**		

Soft Skill Development
Total Credit: 2
Total hours of lectures: 20 hours

Sl.	Topic/Module	Hour
1.	**Module 1 - Personal Skills:** • Knowing oneself – confidence building- defining strengths-thinking creative personal. • Values time and stress management. • Kinds of stress and reason/s of stress • Handling Stressful situation at a workplace **Social Skills** • Appropriate and contextual use of language – non-verbal communication, interpersonal skills, public speaking skills, Flexibility/Adaptability, Behavioural Skills • Problem Solving Skills	5
2.	**Module 2- Team Building and Art of Negotiation** • Nature of the team and management, motivation training • Professional goals of the members of the group • Building relation and interpersonal communication • Negotiation and Ways of negotiation • Power of language and non-verbal communication	5
3.	**Module 3- Personality Development and Interview Techniques** • Personal grooming and business etiquettes, corporate etiquette. • Social Etiquette, role play and body language	5

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	• Professional meetings over lunch/dinner • Basics of the table manner. • Telephonic etiquettes and tone and pitch of the voice • Voice mail • Goal setting • Times schedule	
4.	**Module 4- Presentation Skills** • Group Discussion- mock Group Discussion using video recording. • Speaking skills/ Vocal Training • One's self, how to project one's self in the right frame and spirit. • Proper attire as per the situation • How to write CV or resume for jobs.	5

References/Suggested Readings:

1. Matila Trecee : Successful Communication: Allyun and Bacon Pubharkat

2. Nitin Bhatnagar, Effective Communication and Soft Skills. Pearson Education India

3. Peggy Klaus, The Hard Truth about Soft Skills

4. Eric Garner, Team Building.

5. Wendy Palmer and Janet Crawford. Leadership Embodiment

GENERAL ELECTIVE (Any 1 from the Basket)

Course Name- Study of Textiles
Course Code- GE3B-01

Mode-Offline/ Blended
Course Objectives: The course is designed to provide working knowledge of textile, the best utilization of available fabric resources, the awareness of its property, suitability for a particular use. The students will be able to understand and apply the acquired knowledge in their designs., and enhance aesthetic and functional value of textile material for fashion industry.

Course Outcomes (CO):

Sl	Course Outcome	Mapped modules
1	Remember & Understand different types of Textile materials available in the market and their uses.	M1, M2
2	Understand various kinds of fabrics, their structure, properties and the utility.	M2,

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3	Understand Textile dyeing, printing and finishing techniques and	M3, M4.
4	Apply dyeing & Printing techniques on fabric samples to add aesthetic value to it	M4, M6
5	Remember & Understand various traditional hand embroidery techniques of India, and Apply this techniques for surface ornamentation of fabric samples	M5
6	Apply different embellishment techniques on different samples for value addition to it	M6

Module	Content	Total Hours	%age of questions	Covered CO	Blooms Level	Remarks (If any)
Module 1	Fiber Classification	4	12	1	1,2	
Module 2	Yarn & Fabric Formation	10	20	1	1,2	
Module 3	Fabric Finishing	6	20	2,3	1,2	
Module 4	Dyeing & Printing	8	20	3,4	2,3	
Module 5	Embroidery (Practical)	16	16	5	2,3	
Module 6	Surface Embellishment (Practical)	16	12	4, 6	2,3	
		60	100			

Detailed Syllabus:

Module I (4 Hours)

Introduction to Textiles and classification of fibres
According to source– Natural and Manmade.
Identification and properties of Textile fibres- Cotton, Silk, Wool, Linen, Rayon(regenerated),Acetate ,Polyester, Nylonand Acrylic.

ModuleII (10 Hours)

Process of yarn for mation– handspinning, mechanical–ring spinning and modern-open end spinning. Yarn classification–simple and novel tyyarns, characteristics, properties and uses of different yarn.

Method of fabric construction: Weaving-. Basic weaves-plain, satin, twill and their variations. Fancy weaves-pile, dobby, jacquard, extrawarp and weftfigure, leno, crepe and double cloth.

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Other method of fabric construction- knitting, braiding, lace and felt. Non-woven fabrics and their applications.

ModuleIII (6Hours)

Finishes given to fabrics- definition, importance to the consumer, classification according to durability and function. Singeing, scouring, bleaching, mercerization calendaring, sizing, de-sizing, brushing, carbonizing, crabbing, fulling, heat setting, shearing, weighting, steering, napping.

Special Finishes and Treatments-water repellent and waterproof finishes, antistatic finish, anti-slip finish, flame retardant finishes, crease resistant finishes, durable press and shrink resistant finishes.

Module IV (8 Hours)

Dyeing-Stages of dyeing- fibrestage, yarn dyeing, fabric, cross, union dyeing and product stage. Method of dyeing- batch dyeing, reeldyeing, jig dyeing and package dyeing.

Printing- Direct roller printing, block printing, duplex printing, discharge printing, screenprinting-flat androtary, resist, batikandtie-dye.

ModuleV (Practical) (16 Hours) Embroidery

Embroidery tools and techniques, embroidery threads and their classification, selection of threads, needle and cloth, tracing techniques, ironing and finishing of embroidered articles.

Basic Hand Embroidery. Basic and two variations of r u n n i n g stitch, backstitch, stemstitch, chainstitch, lazy daisy stitch, button hole stitch, feather stitch, herring bone stitch, knot stitch, satin stitch and cross stitch.

Traditional Embroidery- Origin, application & colours. Kantha, Chikan, Kasuti, Zardosi(Fourvariations), Kutchand Mirrorwork (Twovariations).

ModuleVI (Practical) (16Hours) Surface Embellishment

Printing & Painting techniques:–originand applications –Block printing, Kalamkari and Patachitra.

Dyeingand weaving techniques:- Ikats, Patola, Bhandini, Laharia, Shibori, Brocade weave and Carpet weaving.

Special embellishment techniques: Batik-splash, t-janting, crackled, Tie and dye-lehariya, bandini, shibori, sunray and marbling, Block printing- vegetable block and wooden blocks, Applique(2methods), quilting(2 methods), Smocking-Chinese smocking(2 methods), honey comb, gathered with embroidery, Fabric painting(4methods), hand, Stencil- dabbing and spraying.

Suggested readings:
1. Fiber to fabric.,B.T.Corbman, Mc.GrawHill

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2. From fibe rto fabrics,E.gale,Allman&SonsLtd.

3. Fiber Science and their selection.,Wingate,Prenticehall

4. Encyclopedia of textiles.,EditorsofAmericanfabricmagazine.

6.Murphy.W.S.,TextileFinishing,AbhishekPublications,Chandigarh.

7.IndianTie-DyedFabrics,VolumeIVofHistoricTextilesofIndia.Merchant: CelunionShop

8.Traditional Indian Textiles, John Gillow / Nocholas Barnard , Thames & Hudson.

9. Surfacedesignforfabric,RichardMProctor/JenniferFLew,Universityof Washington P r e s s .

10.Artof Embroidery: Historyofstyleandtechnique, LantoSynge,Woodridge

11.TheTimelessEmbroidery,HelenM,David&Charles.

12. Readers Digest, CompleteguidetoSewing,1993, Pleasantville-Nu Gail L,SearchPressLtd.

13. Barbara. S,CreativeArt ofEmbroidery,Lundon,NumblyPub.groupLtd.

14.ShailajaN,TraditionalEmbroideriesof India.,MumbaiAPHPublishing.

Course Name: IT Literacy

Course Code: GE3B-02

Course Objective: This course is designed impart a foundational level appreciation for the implementation of IT in business and management. Students will be utilizing digital tools for communication, researching and interpreting digital information, developing advanced spreadsheets, understanding operating systems and word processing functions, supporting the evaluation, selection and application of office productivity software appropriate to a sports management context.

Sl	Course Outcome	Mapped modules
1	Identify the principal components of a relevant computer system and describe computer technology for communication in management.	M1, M3
2	Interpret fundamental hardware components that make up a computer's hardware and the role of each of these components relevant to Management.	M1,M2
3	Relate the usage of Digital innovations in Sports Threats and Opportunities of Digital Application in Sports, SWOT analysis.	M2, M4
4	Explain the role of information technology in presentation supporting the functions of large sport events and their stakeholders, as well as the needs of sports federations.	M1, M2, M3
5	To understand the emerging technological trends, as well as solutions and applications that will impact broadcasting and media industries and spectators' experience.	M1, M4, M5, M6

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6	Demonstrate developing technology solutions and understanding the limits of data capture (what, how, and why) in sport.	M4, M6	

Module	Content	Total Hours	%age of questions	Blooms Level	Remarks (If any)
M 1	Data and Information Storage	12	20	1,2	
M2	Digital Transformation and innovation in Sports Management	10	15	1, 2	
M3	Presentation Software	08	15	1, 2	
M4	Management Information System	06	15	1, 2	
M5	DOS System commands and editors	10	15	2,3	
M6	Programs involving the use of arrays with subscripts and pointers	12	20	2, 3	
		58	100		

Detailed Syllabus:

Module 1 – Data and Information Storage – Data and Information, definition and meaning, Data Storage device: Primary storage – RAM, ROM, EEROM, PROM, EPROM; Secondary storage – direct access devices, serial access devices: hard disks, CD-ROM, DVD Central Processing Unit – Control Unit.Computer languages, machine language, assembly language and high level language, role of assembler and compiler. Storage devices, floppy disc, hard disc, CD ROM and DVD. Importance of Computer as data storage for Businessand Management. **Fundamental Hardware Applications in Sports Management –** RFID Chips, Sensors, Timing System, andtheir applications in Sports Management.

Operating System and Application Software– Meaning of software; broad classification of software;system. Software and application software; utilities. Systems software – Operating systems: Brief introduction to different types of operating systems like DOS, Windows, Unix, Linux etc.,Importanceand application of Cloud, Mobile, Artificial Intelligence in Sports Management. Use.

        [Total Hours – 12]

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Module 2 - Digital Transformations and Innovations– Digital Transformation and future changes, challenges in Management, factors of success, Impact of Digital media on business, new digitized innovations in modern Management. Impact of Digital media, SWOT analysis.**Role of Data Bases -**Roles, Types, Functions, Current Practice and Future Potentials, Importance of digital technology inManagement.
   [Total Hours – 10]

Module 3 - Presentation Software - Power Point – Creating new presentations – Auto content wizard –Using template – Blank presentation – Opening existing presentations – Adding, editing, deleting, copying , hiding slides – Presentations – Applying new design – Adding graphics – Using headers and footers – Animations text – Special effects to create transition slides – Controlling the transition speed – Adding sounds to slides – Using action buttons. **Word processing software:** WORD – Creating a new document with templates & Wizard – Creating own document – Opening/modifying a saved document – converting files to and from other document formats – Using keyboard short-cuts & mouse – Adding symbols & pictures to documents – header and footers – Finding and replacing text – spell check and Grammar check – Formatting text - paragraph formats - adjusting margins, line space –character space – Changing font type, size – Bullets and numbering – Tables – Adding, editing, deleting tables – Working within tables – Adding, deleting, modifying rows and columns – merging & splitting cells. **Spreadsheet software -** EXCEL – Working with worksheets – cells – Entering, editing, moving, copying, cutting, pasting, transforming data – Inserting and deleting of cells, rows & columns – Workingwith multiple worksheets – switching between worksheets – moving, copying, inserting & deleting worksheets – Using formulas for quick Calculations – Working & entering a Formula – Formatting a worksheet – Creating and editing charts – elements of an Excel Chart – Selecting data to a chart – Types of chart – chart wizard – Formatting chart elements – Editing a chart – Printing charts.
   [Total Hours - 08]

Module 4 - Management Information Management (MIS) - database management, data communications, transaction processing information systems, decision support systems, informationreporting systems, office automation, networks, expert systems, and systems analyses and design. **ERP**: Introduction – Need for ERP – Advantages – Major ERP Packages – Applications.
   [Total Hours - 06]

Module 5 - DOS System commands and Editors (Preliminaries) used in Sports Management. **UNIX system** commands and vi (Preliminaries) – Applications in Management. **Programs to demonstrate control structure:** text processing, use of break and continue, etc. **Programs involving functions andrecursion,** Use and application in Business and Management.
   [Total Hours - 10]

Module 6 - Programs involving the use of arrays with subscripts and pointers, Programs using structures and files. Applications of C Language. **Microsoft office -** Word, Excel, PowerPoint, Mail merge, Internet – Use and Applications.
   [Total Hours – 12]

Suggested Readings:
1. Mano – Computer System Architecture; Pearson Education
2. Tanenbaum – Structured Computer Organization,Pearson Education
3. Martin & Powell – Information Systems: A Management Perspective; mcgraw-Hill
4. Laudon & Laudon – Management Information Systems: Pearson Education

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5.Comer: Computer Networks and the Internet: Pearson Education Graham Curtis – BusinessInformation Systems: Addison Wesley

6. Introduction to Computers with MS-Office, Leon, TMH

7. An Introduction to Database Systems - C.J. Date, Pearson Education

8. Windows 98 6 in one by Jane Calabria and Dorothy Burke – PHI

9.Using Microsoft Office 2000 by Ed, Bott – PHI

10.Enterprise Resource planning (ERP): Text and case studies by Murthy, C S V, HPH

11.Teach yourself SAP in 24 hours by George Anderson; Danielle Larocca - Pearson Education

12.Teach yourself SAP in 24 hours by George Anderson; Danielle Larocca - Pearson Education

13.Running MS – DOS by Van Wolverton, 20th Anniversary Edition

14.C Programming Language (Prentece Hall Software) by Brian W. Kernighan

15.Let Us C by Yashavant Kanetkar.

16.Data Structure Through C by Yashavant Kanetkar

17.C in depth by Deepali Srivastava and S.K.Srivastava

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Paper Code: GE3B-03
Course Name - Basic Mathematics and Statistics
Paper Code: GE3B-03
Total Credit: 6
Total hours of lectures: 60 hours

Course Objective: The course is designed to provide a basic applied knowledge of mathematics. The students will be to apply the number system & basic algebra, set theory, determinants and matrices, limits, continuity, differentiation & Integration, data frequency & distribution and measures of central tendency and measures of dispersion for solving business problems.

Sl	Course Outcome	Mapped modules
1	Remembering	M1,M2,M3,M4,M5,M6
2	Understanding the course	M1,M2,M3,M4,M5,M6
3	Applying the general problem	M1,M2,M3,M4,M5,M6
4	Analyse the problems	
5	Evaluate the problems after analysing	
6	Create using the evaluation process	

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	The Number System and BasicAlgebra	8	10	1,2	
M 2	Set Theory and Permutation and Combination	10	15	1,2	
M 3	Determinants and Matrices	10	15	1,2	
M 4	Limits, Continuity,Differentiation and Integration	16	35	1,2,3	
M 5	Data, Frequency Distribution	6	10	1,2,3	
M 6	Measures of Central Tendencyand Measures of Dispersion	10	15	1,2,3	
		60	100		

Sl.	Topic/Module	Hour
1.	**Module 1 : *The Number System*** – Positive and Negative Integers, Fractions, Rational andIrrational Numbers, Real Numbers, Problems Involving the Concept of	

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	Real Numbers. ***Basic Algebra*** – Algebraic Identities, Simple Factorizations; Equations: Linear and Quadratic (inSingle Variable and Simultaneous Equations). Surds and Indices; Logarithms and Their Properties (Including Change of Base); Problems Based on Logarithms.	
2.	**Module 2** : ***Set Theory-***Introduction; Representation of sets; Subsets and supersets; Universal and Null sets; Basic operations on sets; Laws of set algebra; Cardinal number of a set; Venn Diagrams; Application of set theory to the solution of problems ***Permutations and Combinations*** – Fundamental principle of counting; Factorial notation. Permutation: Permutation of n different things; of things not all different; restricted permutations; circular permutations. Combination: different formulas on combination; complementary combination; restricted combination; Division into groups. Mixed problems on permutation and combination	7
3.	**Module 3**: ***Determinants-*** Determinants of order 2 and 3; minors and cofactors; expansion of determinants; properties of determinants; Cramer's rule for solving simultaneous equations in twoor three variables ***Matrices-*** Different types of matrices; Matrix Algebra – addition, subtraction and multiplication of matrices; Singular and non-singular matrices; adjoint and inverse of a matrix; elementary row / column operations; Solution of a system of linear equations using matrix algebra. Concept of Eigen Value, Eigenvector.	7
4	**Module 4:** Differentiation: Meaning & geometrical interpretation of differentiation; standard derivatives (excluding trigonometric functions); rules for calculating derivatives; logarithmic differentiation. Integration: Meaning, Standard formulas, Substitution, Integration by parts (Excluding Trigonometric functions)	4
5.	**Module 5**: ***Data-***Collection, Editing and Presentation of Data: Primary data and secondary data; Methods of collection; Scrutiny of data. Presentation of data: textual and tabular presentations; Construction of a table and the different components of a table. Diagrammatic representation of data: Line diagrams, Bar diagrams, Pie charts and divided-bar diagrams.	7
5.	**Module 5** : ***Frequency Distributions-*** Attribute and variable; Frequency distribution of an attribute; Discrete and continuous variables; Frequency distributions of discrete and continuous variables; Bivariate and Multivariate Frequency Distributions. Diagrammatic representation of a frequency distribution: case of an attribute; case of a discrete variable: column diagram, frequency polygon and step diagram; case of a continuous variable: histogram and ogive.	7
6.	**Module 6** : ***Measures of Central Tendency-*** Definition and utility; Characteristics of a good average; Different measures of average; Arithmetic Mean; Median; Other positional measures – quartiles, deciles, percentiles; Mode; Relation between Mean, Median and Mode; Geometric and Harmonic Mean. Choice of a suitable measure of central tendency.	10

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| 7 | **Module 7:** *Measures of Dispersion-* Meaning and objective of dispersion; Characteristics of a good measure of dispersion; Different measures of dispersion – Range, Quartile deviation, Mean deviation, Mean Absolute deviation, Standard deviation; Comparison of the different measures of dispersion. Measures of relative dispersion – Coefficient of Variation. Combined mean and standard deviation, Combined mean and standard deviation.
 Introduction to Skewness, Kurtosis, Moments. | 10 |

Suggested Readings:

1. H. S. Hall & S. R. Knight – Higher Algebra; Radha Publishing House.
2. Reena Garg, Engineering Mathematics, Khanna Publishing House.
3. Sancheti& Kapoor – Business Mathematics; Sultan Chand & Company.
4. R. S. Soni – Business Mathematics – Pitambar Publishing House.
5. N G Das, Statistical Methods (Combined edition volume 1 & 2), McGraw Hill Education.
6. J K Sharma: Business Statistics, fifth edition, Vikas Publishing house.

Paper Name: MATHEMATICS FOR COMPUTER SCIENCE PART 1Code : BSCIT103/GE3B-04

Contact: 5L+1T

Credits: 6

Allotted Hrs: 60

Course Objectives:

CO1. To understand different kind of sets, relation, various algebraic structure and their properties.
CO2. To understand the base and dimension of vector space, characteristics of vector space in different dimension, linear transformation, eigenvalue and Eigen vectors..

CO3. To learn the imaginary number and imaginary roots of a equation, number in terms of i, operations of complex number i.e. addition, subtraction, conjugate, multiplication, division.

CO4. . To understand basic property of matrices and determinant, relation between matrices and vector space.

CO5. To understand the formation of series from sequence, different type of series, concept of convergence and divergence.

CO6. To understand different type of data and their distribution , presentation, operation for calculating dispersion of central tendency and dispersion.

Course Outcomes:

Sl. No.	Course Outcome	Mapped Module

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Effective from academic session 2020-2021

1	Ability to understand the properties of various algebraic structure and relationship between them. Ability to define binary operation, group, subgroup, ring, field and their properties.	Module 1
2	Ability to understand dimension of vector space, calculation of rank and nullity, linear transformation and mapping.	Module 2
3	Ability to solve quadratic equations with complex roots, properties of i, Operation of complex number.	Module 3
4	Ability to understandseveral kindof matrices, propertiesof determinant, calculationof rank of a matix, interpretation of existence and uniqueness of solution geometrically.	Module 4
5	Ability to check convergent and divergent of different series, type of infinite series.	Module 5
6	Ability to calculate measure of central for different type of series and dispersion.	Module 6

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)	Module Number	Content
Module 1	Modern Algebra	10	20	1	11		
Module 2	Vector Space	12	25	2	11		
Module 3	Complex numbers	8	10	3	11		
Module 4	Matrices and Determinants	10	20	4	11		
Module 5	Infinite Series	8	10	5	11		
Module 6	Basic Statistics	12	15	6	11		

Module I Modern Algebra :
Group, Ring, Field 8

Module II Vector Spaces:

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Vector Space, linear dependence of vectors, Basis, Dimension; Linear transformations (maps), Range and Kernel of a linear map, Rank and Nullity, Inverse of a linear transformation, Rank-Nullity theorem, composition of linear maps, Matrix associated with a linear map. 8

Module III Complex Numbers:
Complex Numbers; Conjugate of a complex number; modulus of a complex Number; geometrical representationofcomplex number; De Moivere'stheorem; n-th rootsofa complex number.6

Module IV Matrices and Determinants :
Determinants and its properties; Cramer's Rule, Definition of a matrix; Operations on matrices, inverse of a matrix; solution of equations using matrices, rank of a matrix, Basics of Vector analysis 8

Module V Infinite Series:
Convergence and divergence; series of positive terms; binomial series; exponential series; logarithmic series, Taylor's series.6

Module VI Basics Statistics:
Measures of central Tendency – Mean, Median, Mode for frequency and non-frequency distributions, Measures of dispersion – Range, Mean deviation about Mean and Median, Quartile deviation, individual and combined standard deviation; variance, coefficient of variation.**4 hours**

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SEMESTER 4

Paper: LIGHTING & COMPOSITING (INTRO TO NUKE)

Code: BVFM 401

Course Objective: This paper will focus on understanding the different kinds of lights and light set-up in a Maya Scene. This course is an introduction where you should be able to perform basic 2D and 3D visual effects compositing with Nuke. In this section, you can learn about Nuke channels, node trees, and keyframe animation and get an overview of the compositing workflow. You will also get introduced to 2D compositing: image transformations, color correction, rotoscoping, keying, timing adjustments, and tracking. Similarly, you can expand your skills into 3D: working with lights and cameras, transforming and deforming 3D geometry, applying materials and textures, and rendering.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Introduction to Lighting & Maya Lighting**	8	25		
M 2	**Arnold Lighting**	8	25		
M 3	**Introduction to Nuke & 2D Compositing**	8	25		
M 4	**3D Compositing**	8	25		
		32	100		

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LIGHTING & COMPOSITING (INTRO TO NUKE)
Total Credit: 4
Total hours of lectures: 32 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Introduction to Lighting & Maya Lighting** • Introduction to CG Lighting • Working with Maya Lights 1-Point, Direct, Spot,Ambient, Area and Volume, • Three Point Lighting and Exterior Lighting, Cast shadows, decay rate, Previewing lighting and shadows • Creating depth map Shadow, creating ray traced shadows, • Concept of lighting system and shadows, Creating area light shadows, setting area light visibility	8
2.	**Module 2- Arnold Lighting** • Introducing Arnold and its rendering concepts • Basic Maya Lights for Arnold • Using Arnold lights • Add depth of field in Arnold • Create motion blur in Arnold • Volumetric Lighting in Arnold • Exterior & Interior Lighitng in Arnold • Maya Rendering in Arnold • Enviornmental Lighting	8
3.	**Module 3- Introduction to Nuke & 2D Compositing** • Tour of the interface • TheTimeline • Project Settings • Build Node trees • Working with properties panels • Adjust node parameters • Keyframe Animation • TheDope Sheet • The curve Editor • Introduction to the channels, 2D Viewer Wipe controls • Transfer Images, Corner Pinning, Reformat images, Color Correcting • Rotoscoping • Mask Operations • Compositing multipass CGI • Chromakey basics • Tracking Basics	8
4.	**Module 4- 3D Compositing**	8

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	- Overview of 3D Compositing 3D Viewer - Built in geometric Perspectives - Lights - Cameras - Transform Geometry - ThePhong Shader & Material Properties - Camera Projection - Deform Geometry	

Suggested Software – Autodesk Maya
Nuke

Suggested Reading:

Autodesk Maya 2018 by Ticked Sham

Mastering Autodesk Maya 2017 by Eric Keller.

Advanced Maya Texturing and Lighting – Lee Lanier

Introducing Maya 2017 by Dariush Derakhshani.

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Paper: LIGHTING & COMPOSITING (INTRO TO NUKE) Lab

Code: BVFM 491

Course Objective: This paper will focus on understanding the different kinds of lights and light set-up in a Maya Scene. This course is an introduction where you should be able to perform basic 2D and 3D visual effects compositing with Nuke. In this section, you can learn about Nuke channels, node trees, and keyframe animation and get an overview of the compositing workflow. You will also get introduced to 2D compositing: image transformations, color correction, rotoscoping, keying, timing adjustments, and tracking. Similarly, you can expand your skills into 3D: working with lights and cameras, transforming and deforming 3D geometry, applying materials and textures, and rendering.

Course Outcome	Mapped modules
Remembering	M1, M2, M3, M4
Understanding the course	M1, M2, M3, M4
Applying the general problem	M1, M2
Analyse the problems	M4
Evaluate the problems after analysing	M3, M4
Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Maya Lighting**	10	40		
M 2	**Arnold Lighting**	10			
M 3	**Introduction to Nuke & 2D Compositing**	10	40		
M 4	**3D Compositing**	10			
		40	**80**		

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LIGHTING & COMPOSITING (INTRO TO NUKE) Lab

Total Credit: 2

Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	**Module 1- Maya Lighting** • Set light for Day, Night and Morning • Create FOG nodes in your scene. • Render a frame and video of indoor and outdoor scenes. • Direct Illumination-Creating and Illuminating a Stage Show,	10
2.	**Module 2- Arnold Lighting** • Arnold viewport rendering, Render a frame and video of indoor and outdoor scenes. • Render a photorealistic output of an interior scene. • Render a natural scene show different time by varying lighting. • Advance lighting using arnold render.	10
3.	**Module 3- Introduction to Nuke** &2D Compositing • The User Interface • Loading images • Using Generators • Frame range & Timing • The write & read node • Merging nodes and compositing • Working with shape and grade nodes • Assignments will be done on following above points induvial on different live footages and render images. • Composing fire and smoke stock footages with live footage • Shooting and Collecting Fire references and composite it with footages	10
4.	**Module 4- Compositing & Introduction of Nuke** • Integrating a CGI (Computer Generated Image) render into a real scene • Learn how to make a 3D Scene • Render layers (AOVs) inside of Nuke, and how to break them apart • Create dynamic lens flares based off of source imagery • Studying shadow & light, and how to match the real world • Matching color tones, darks, highlights of an image • Using utility passes to do spot corrections (Position Pass) • Learn the variety of uses for Z-Depth passes • Use ID passes to correct different geometries • Learn how to match camera attribute (Defocus, Grain, Bokeh, Lens Distortion) • Create realistic post-production camera imperfections and artifacts	10

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- Compositing elements / FX into a shot
- How to quality control (QC) your final shot
- How to use the normals AOV to fine tune CG.
- Assignments will be done on following above points induvial on different live footages and render images

Suggested Software – Autodesk Maya
Nuke

Suggested Reading:

1. Autodesk Maya 2018 by Ticked Sham
2. Mastering Autodesk Maya 2017 by Eric Keller.
3. Introducing Maya 2017 by Dariush Derakhshani.
4. Advanced Maya Texturing and Lighting – Lee Lanier

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Syllabus of B.Sc.in VFX Film Making (CBCS)
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Paper : CG PYRO – ADVANCED TECHNIQUES

Code: BVFM 402

Course Objective: The course is designed to learn Maya dynamics skill set needed to make animation projects more realistic and believable. We will teach how to understand atmospheric effects like wind and rain, ocean waves and ripples, as well as the effects of fire and candles, explosions, crumbling, and much more. Introduction to Dynamics, and Dyna motive solver, Particles, Emitters, Fields: Air, Drag, Gravity, Newton, Turbulence, Vortex, Volume, Particle collusions, Particle cache, Goals, Soft bodies, Springs, Rigid bodies, Constraints, Effect: Fire, Smoke, Fireworks, Lightening, Shatter, Curve flow, Surface flow, Rendering particles and effects, Maya Paint Effects, baking simulations, Render types. Fluid Effects Introduction to Fluids, Fluid field interaction, Fluid attributes Creating a non-dynamic 3d fluid effects, Creating dynamic 3D effect, Creating fire and smoke using Fluid dynamics, creating an ocean,liquid simulations. Introduction to nParticles and Nucleus solver, Nucleus node, Nucleus forces, Nucleus plane, Nucleus attributes, nParticles interaction, nConstraints, nCloth: simulations, nCloth dynamics properties, Working with nConstraints, Tearing cloth, Dynamic Property maps, Simulating cloth on moving character, and Particle caching, nConstraints, Creating Smoke simulations in nParticles, Creating liquid simulations in nParticles, Introduction to nHair, Creating Basic hair style, Creating a dynamic curve simulations.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Particle System Dissipation,Instancing ,Fluids.**	8	25		
M 2	**Goal & Ncloth,Xgen Hair & Mash**	8	25		
M 3	**Bifrost & bullet**	10	25		

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M 4	**Introducting Real flow**	4	25		
		30	**100**		

CG PYRO – ADVANCED TECHNIQUES
Total Credit: 4
Total hours: 30 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- Particle System** • Particle system and Emitter • Particle system Fields • Working with Particle Tool: Learn how to work with Particle tool • Particle Directions • Per-Particle Expressions • Different effects with particle **Dissipation** • Fluid ,particles dynamic simulation theory and stages • Smoke and powder dust • Density, turbulences, color and dissipations • Simulation of a disintegration effect • Efficient mesh for disintegration purposes • Secondary particles and fluid simulations • Per-Particle attributes (RGBPP, Opacity PP) and Rand Expression **Instancing** • Introducing Instancing effect • Instancing with different objects • Animate many identical objects in a scene • Control the motion of the individual instanced objects • Per Particle Attributes Sprite Twist PP, Scale PP, Velocity PP, Mass, RGB PP, Opacity PP, Applying Turbulence and Animating attributes. of Particle Instancer	8
2.	**Module 2- Goal & Ncloth** • Introducing Particle Goal & Ncloth • Goal U and V • Working with force for each particle to move toward a point on the goal • Particles or soft bodies can have multiple goals • Working with Ncloth and different attributes.	8

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	• Active & Passive colliders **Xgen Hair & Mash** • Introducing Hair & Mash • Attaching Hair • Painting and Control Attributes • Combing and Styling • Long hair for character Hair • Shading. natural movement and collisions of long hair • Collisions between hair and character • Mash Nodes • Mash workflows • Mash networks	
3.	**Module 3- Bifrost & bullet** • Collisions: Relation Ship Editor, • Collision and Events, Event Expressions • Water Splashes Simulation Fundamentals Bifrost Workspace Solver Attributes Liquid Emitters and Kill-Planes • Accelerators and Collisions Caching and display properties • Meshing particles Rendering setup: implicit and meshes.	10
4.	**Module 4- Introducing Real flow** • Introducing Real Flow • Loading Plug-in and Scripts, Importing and Exporting OBJ and SD Files, • Scene Scale and User Interface, • Emitter types and Attributes, Demons, • Collisions.Introduction to real flow • Working with real flow ,Students will work on creating fluid and water Simulation • Fundamentals,Realflow Workspace ,Solver Attributes , • Liquid Emitters and Kill-Planes.Accelerators and Collisions • Caching and display properties.Meshing particles ,Rendering setup: implicits and meshes.	4

Suggested software : Autodesk Maya
                                     Nuke

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Suggested Readings:
1. Dariush Derakhshani, Introducing Maya 2009, Sybex; 1 Edition, 2009.

2. Eric Keller, Maya Visual Effects: The Innovator's Guide Sybex; 2 edition. 2013.

3. Learning Maya 7: The Special Effects handbook by Alias Leaning Tools, Sybex; 1 edition, 2005.

4. Steve Wright, Compositing Visual Effects, Second Edition: Essentials for the Aspiring Artist, Focal Press; 2 edition, 2011.

5. RealFlow Beginners Guide - Downloadable PDF

6. Dariush Derakhshani, Introducing Maya 2009, Sybex; 1 Edition, 2009.

7. Eric Keller, Maya Visual Effects: The Innovator's Guide Sybex; 2 edition. 2013.

8. Learning Maya 7: The Special Effects handbook by Alias Leaning Tools, Sybex; 1 edition, 2005.

9. Steve Wright, Compositing Visual Effects, Second Edition: Essentials for the Aspiring Artist, Focal Press; 2 edition, 2011.

Paper: CG PYRO – ADVANCED TECHNIQUES Lab

Code: BVFM 492

Course Objective: The course is designed to navigate the complex structure of Maya Dynamics. Connect seemingly unconnected areas of Maya such as paint effects, soft bodies and particles. Able to create a variety of effects using simple techniques. Comprehend how to use commonly used but little understood expressions.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)

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M 1	**Particle System Dissipation,Instancing,Fluids.**	12	40		
M 2	**Goal & Ncloth,Xgen Hair & Mash**	10			
M 3	**Bifrost & bullet**	12	40		
M 4	**Introducting Real flow**	8			
		40	**80**		

CG PYRO – ADVANCED TECHNIQUES Lab
Total Credit: 2
Total hours: 40 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- Particle System** • Understanding Physics and natural forces and fields • Analysing timing and colours • article Simulation (Fire, Tornedo, Rain) • Rigid Body Simulation • Concept of Soft Body • Creating Particle portal and working with different attributes **Dissipation** • Creating galaxy with milky way using reference Assignments • Working with Per-Particle attributes (RGBPP, Opacity PP) and Rand Expression as Assignments • Making dust while blast / destructions • Collisions Expression, Collision Position, Collision U and V Attributes, Dynamic texture marks • Forces: Air, Radial, Vortex, Nuton, Uniform, Gravity • Creating Hand dispersion effect Assignments **Instancing** • Instance Particle in different types with different objects • Instancing Paint Effects, Light with Optic Effects, Animated Object for crowd Using Gnomon MEL Scripts • Falling leafs using instances and rendering using software, hardware and compositing	12

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	• Creating Sprite images, Sprite Wizard, Smoke Sprite and Per Particle Attributes Sprite Twist PP, Scale PP, Velocity PP, Mass, RGB PP, Opacity PP, Applying Turbulence and Animating attributes • Assignments will be done on following above points induvial on types of objects.	
2.	**Module 2- Goal & Ncloth** • Particle Goal • Goal weights and smooth, • Applications of Goal Tool • Goal U and V, Goal Expressions, • Instancing Goal objects • Dynamics Constraints • Velocity expressions, Goal with deform and Animated objects • Cloth Creation and Conversions, Solver and Dynamic Attributes. • Dropping dynamic cloth • curtain dynamics **Xgen Hair & Mash** • Concept of Fur Simulation • Creating long hair for character • Concept of Hair Simulation • Creating Follicles, Attaching Hair, Painting and Control Attributes, Combing and Styling. • creating long hair for character as assignments. • Hair Lighting Techniques, Shading assignments. **Soft Body** • Creating Tyre Marks on sand or muddy ground. • Creating Character foot prints on snow.	10
3.	**Module 3- Bifrost & bullet** • Introduction to Simulation Fundamentals • Bifrost Workspace • Solver Attributes • Liquid Emitters and Kill-Planes • Accelerators and Collisions • Caching and display properties • Meshing particles	12

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	• Rendering setup: implicit and meshes	
	• Bullet Colliding objects	
	• Tweaking simulations in Bullet	
	• Creating Flood and Bottle water as Assignment	
	• Creating tap water assignment and other induvial assignments.	
4.	**Module 4- Introducing Real flow**	8
	• working with real flow	
	• Falling soap/ any object into cup of milk	
	• Introduction to Simulation Fundamentals	
	• Real flow Workspace	
	• Solver Attributes	
	• Liquid Emitters and Kill-Planes	
	• Accelerators and Collisions	
	• Caching and display properties	
	• Meshing particles	
	• Rendering setup: implicit and meshes	
	• Creating Flood and boat in water and different water bodies	

Suggested Softwares- Autodesk Maya

Nuke

Suggested Readings:
1. Dariush Derakhshani, Introducing Maya 2009, Sybex; 1 Edition, 2009.

2. Eric Keller, Maya Visual Effects: The Innovator's Guide Sybex; 2 edition. 2013.

3. Learning Maya 7: The Special Effects handbook by Alias Leaning Tools, Sybex; 1 edition, 2005.

4. Steve Wright, Compositing Visual Effects, Second Edition: Essentials for the Aspiring Artist, Focal Press; 2 edition, 2011.

5. RealFlow Beginners Guide - Downloadable PDF

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7. Eric Keller, Maya Visual Effects: The Innovator's Guide Sybex; 2 edition. 2013.

8. Learning Maya 7: The Special Effects handbook by Alias Leaning Tools, Sybex; 1 edition, 2005.

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9. Steve Wright, Compositing Visual Effects, Second Edition: Essentials for the Aspiring Artist, Focal Press; 2 edition, 2011.

Paper: ROTO; PAINT & CHROMA KEYING

Code : BVFM 403

Course Objective: The course is designed to learn Rotoscopy that creates a mask by drawing shapes onto a layer. The process of generating matte (aka mask) to extract the required elements in a shot. It is also use to quickly generate garbage matte to remove unwanted elements or block in any gap from less than perfect keying (from tools such as Keyer, Primatte, Keylight, IBK etc).

CHROMA KEYING : This course explains how to use the blue/green screen keyer, ChromaKeyer, in Nuke. ChromaKeyer can take advanta ge of modern GPUs and multi-core CPUs to accelerate the keying process when used for compositing in Nuke's Node Graph. ChromaKeyer is also available as a soft effect in Nuke timeline environment.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Rotoscopy**	10	25		
M 2	**Advanced Rotoscopy**	5	25		
M 3	**Paint**	7	25		
M 4	**Croma Keying**	8	25		
		30	**100**		

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ROTO; PAINT & CHROMA KEYING
Total Credit: 4
Total hours: 30 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1-Rotoscopy** Masking, Animating Mask and Paint Masks. ROTO Scoping and Techniques. Using different Techniques and Masking tools.	10
2.	**Module 2- Advanced Rotoscopy** Rotoscoping and luminance keying techniques. Along the way, analysing different planar surfaces. Learning production-proven tips and tricks for compiling various luminance keys and rotoscoped shapes. How to Track with 3d projection camera.	5
3.	**Module 3- Paint** The integrated Matte Channel, Multi source operators: over, mix, subtract, In, Out, Atop. Masks, compositing with pre multiplied images, color difference method. Rotopaint / animations	7
4.	**Module 4- Croma Keying** Image Generation Pixels, Components and channels, Spatial Resolution, Bit depth Normalized values Additional Channels, HSV Color Representation, Image Input Devices, Digital image File formats, File Format Features Vendor Implementations of File formats, Compression Choosing a File Format Nonlinear Color Spaces, Basic Image Manipulation Terminology Color Manipulations, 3D Transforms Warping Expression Language Filtering Algorithms.Introduction to channels / nodes of transformations	8

Suggested Softwares-

Ref Books:

1.Nuke 101: Professional Compositing and Visual Effects Pdf

2.NUKE USER GUIDE by foundry pdf

3. Sze Chianly / Samantha Goh, Digital Compositing with Nuke 101, Fatbars   Limited-   2010

4.Ganbar R, NUKE 101. Professional Compositing and Visual Effects -

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Paper : ROTO; PAINT & CHROMA KEYING Lab

Code: BVFM 493

Course Objective: The course is designed to learn Rotoscopy that creates a mask by drawing shapes onto a layer. The process of generating matte (aka mask) to extract the required elements in a shot. It is also use to quickly generate garbage matte to remove unwanted elements or block in any gap from less than perfect keying (from tools such as Keyer, Primatte, Keylight, IBK etc).

CHROMA KEYING : This course explains how to use the blue/green screen keyer, ChromaKeyer, in Nuke. ChromaKeyer can take advantage of modern GPUs and multi-core CPUs to accelerate the keying process when used for compositing in Nuke's Node Graph. ChromaKeyer is also available as a soft effect in Nuke timeline environment.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Rotoscopy**	10	40		
M 2	**Advanced Rotoscopy**	10			
M 3	**Paint**	10	40		
M 4	**Croma Keying**	10			
		40	**80**		

ROTO; PAINT & CHROMA KEYING Lab
Total Credit: 2
Total hours: 40 Hrs

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Sl.	Topic/Module	Hour
1.	**Module 1-Rotoscopy** • How to draw points and adjust the tangents - • The handles on each of the points - • To refine the roto shape. • Painting strokes, Editing strokes, • Painting in vectors, • Erasing and deleting strokes. • Animating Roto Shapes. • Working in different footages as assignments.	12
	Module 2- Advanced Rotoscopy • Generating mattes and masks and the Roto node. • Creating includes and excludes. • Viewing Spline Keyframes • Deleting or Rippling Keyframes • Copying, Cutting, and Pasting Animations • Rotoscoping Character Hair Footages and crowd footages for assignments • Single poly and hair roto • Sterio roto with different colour and nodes • VFX and Sterio type Roto shape Operations • Working in different footages as assignments.	8
3.	**Module 3- Paint** • Using the Brush tool • Using the Eraser Tool • Using the Clone Tool • Using the Reveal Tool • Wire removal • Body paint • Garbage matting and distrusting • Working with rig removals and body paint Assignments	10
4.	**Module 4- Croma Keying** • How to use Luma, Primate and Key light Keyers work. • Generates the processed screen image that preserves the color variations in blue- or greenscreen. • Different types of process of keying. Combining Keyer Nodes • Using the Tree, Erode, Dilate, and Erode, Spill suppressing with Hue Correct.	10

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- Working on different types of Croma Footages with hair a detail. - Matching roto and Croma mattes and blurs together. - Working with Hard and soft edges. - working with any green / blue screen footages and compositing CG sets - Working in different footages as assignments.	

Suggested Softwares- Nuke

.**Ref Books:**

1.Nuke 101: Professional Compositing and Visual Effects Pdf

2.NUKE USER GUIDE by foundry pdf

3. Sze Chianly / Samantha Goh, Digital Compositing with Nuke 101, Fatbars   Limited-   2010

4.Ganbar R, NUKE 101. Professional Compositing and Visual Effects –

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Paper: VISUAL COMMUNICATION

Code: BVFM 404

Course Objective: Apply appropriate communication skills across settings, purposes, and audiences.

Demonstrate knowledge of communication theory and application.
Demonstrate critical and innovative thinking. 2. Display competence in oral, written, and visual communication. 3. Apply communication theories.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Rigging Basics**	6	25		
M 2	Introduction to Basic Perspective	8	25		
M 3	Basic Figure Drawing	8	25		
M 4	Masses of the Figure	8	25		
		30	**100**		

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VISUAL COMMUNICATION

Total Credit: 2

Total hours of lectures: 20 hours

Sl.	Topic/Module	Hour
1.	**Module 1** • Need for and the Importance of Human and Visual Communication. Communication a expression, skill and process, Understanding Communication: SMRC-Model • Communication as a process. Message, Meaning, Connotation, Denotation Culture/Codes etc Levels of communication: Technical, Semantic, and Pragmatic. The semiotic landscape: language and visual communication, narrative representation	10
2.	**Module 2 -** Fundamentals of Design: Definition. Approaches to Design, Centrality of Design, Elements of Design: Line, Shape, Space, Colour, Texture. Form Etc. Principles of Design: Symmetry. Rhythm, Contrast, Balance Mass/Scale etc. Design and Designers (Need, role, process, methodologies etc.)	10
3.	Module 3 - Principles of Visual and other Sensory Perceptions. Colour psychology and theory (some aspects) Definition, Optical / Visual Illusions Etc Various stages of design process- problem identification, search for solution refinement, analysis, decision making, and implementation.	10
4.	**Module 4 –** Basics of Graphic Design. Definition, Elements of GD, 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	10

Suggested Readings:

1.Communication between cultures - Larry A. Samovar, Richard E. Porter, Edwin R. McDaniel & Carolyn Sexton Roy, Monica Eckman, USA, 2012

2.Introduction to Communication studies - John Fiske & Henry Jenkins 3rd edition, Routledge, Oxon 2011

3. An Introduction to communication studies - Sheila Steinberg, Juta & Co., Cape Town, 2007

4. One World Many Voices: Our Cultures - Marilyn Marquis & Sarah Nielsen, Wingspan Press, California, 201

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Course Name: Operating Systems with LINUX
Course Code: GE4B-01
Mode-Offline/ Blended
Course Objective: The course is designed to understand the fundamental utilities which are required on daily basis to work on a modern operating system. The course will cover an introduction on the policies for scheduling, deadlocks, memory management, synchronization, system calls, and file systems. On successful completion of this course students will be able to make effective use of Linux utilities to solve problems

Sl	Course Outcome	Mapped modules
1	Remember fundamental components of a computer operating system	M1
2	Remember and Understand policies for scheduling, deadlocks, memory management, synchronization, system calls, and file systems	M2, M3
3	Understand the basic commands of Linux operating system	M4
4	Understand & Apply the knowledge to create file system and directories	M1, M4, M5
5	Apply the knowledge to create processes, perform pattern matching	M1, M4, M6
6	Application of the gathered knowledge to develop simple programs	M1, M4, M5, M6

Module	Content	Total Hours	%age of questions	Blooms Level	Remarks (If any)
M 1	Introduction	4	5	1	
M 2	Process	10	20	1,2	
M 3	Resource Manager	6	15	2	
M 4	Introduction to Unix OS	12	20	2,3	
M 5	Files	12	20	3	
M 6	Shells & Process	12	20	4	
		56	100		

Detailed Syllabus:
Paper: Operating system with LINUX
Module 1: Introduction
Importance of OS, Basic concepts and terminology, Types of OS, Different views, Journey of a command execution, Design and implementation of OS.
(Total hours -4)

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Module 2: Process (10L)

Concept and views, OS view of processes, OS services for process management, Scheduling algorithms, Performance evaluation; Inter-process communication and synchronization, Mutual exclusion, Semaphores, Hardware support for mutual exclusion, Queuing implementation of semaphores, Classical problem of concurrent programming, Critical region and conditional critical region, Monitors, Messages, Deadlocks.
(Total hours -10)

Module 3: Resource Manager

Memory management, File management, Processor management, Device management.
(Total hours -6)

Module 4: Introduction to UNIX Operating System

Introduction to UNIX UNIX operating system, UNIX architecture: Kernel and Shell, Files and Processes, System calls, Features of UNIX, POSIX and single user specification, Internal and external commands.
Utilities of UNIX Calendar (cal), Display system date (date), Message display (echo), Calculator (bc), Password changing (password), Knowing who are logged in (who), System information using uname, File name of terminal connected to the standard input (tty)
UNIX file system File system, Types of file, File naming convention, Parent – Child relationship, HOME variable, inode number, Absolute pathname, Relative pathname, Significance of dot (.) and dotdot (..), Displaying pathname of the current directory (pwd), Changing the current directory (cd), Make directory (mkdir), Remove directories (rmdir), Listing contents of directory (ls), Very brief idea about important file systems of UNIX: /bin, /usr/bin, /sbin, /usr/sbin, /etc, /dev, /lib, /usr/lib, /usr/include, /usr/share/man, /temp, /var, /home
(Total hours – 6)

Assignment –

LINUX Utilities - Calendar, Display system date, Message display, Calculator, Password changing, Knowing who are logged in, Knowing System information
Directory creation, removal, listing, navigation –
Displaying pathname of the current directory (pwd), Changing the current directory (cd), Make directory (mkdir), Remove directories (rmdir), Listing contents of directory (ls and its options), Absolute pathname, Relative pathname, Using dot (.) and dotdot (..)
(Total Hours – 6)

Module 5: Files

Ordinary file handling Displaying and creating files (cat), Copying a file (cp), Deleting a file (rm), Renaming/ moving a file (mv), Paging output (more), Printing a file (lp), Knowing file type (file), Line, word and character counting (wc), Comparing files (cmp), Finding common between two files (comm), Displaying file differences (diff), Creating archive file (tar), Compress file (gzip), Uncompress file (gunzip), Archive file (zip), Extract compress file (unzip), Brief idea about effect of cp, rm and mv command on directory. File attributes File and directory attributes listing and very brief idea about the attributes, File ownership, File permissions, Changing file permissions – relative permission & absolute permission, Changing

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file ownership, Changing group ownership, File system and inodes, Hard link, Soft link, Significance of file attribute for directory, Default permissions of file and directory and using umask, Listing of modification and access time, Time stamp changing (touch), File locating (find).
(Total Hours – 6)

Assignment –
 Ordinary File Handling - Displaying and creating files, Copying a file, Deleting a file, Renaming/
moving a file, Paging output, Knowing file type, Line, word and character counting (wc), Comparing files, Finding common between two files, Displaying file differences File attributes – File and directory attributes listing, File ownership, File permissions, Changing file permissions – relative permission & absolute permission, Changing file ownership, Changing group ownership, File system and inodes, Hard link, Soft link, Default permissions of file and directory and using umask, Listing of modification and access time, Time stamp changing, File locating
(Total Hours – 6)

Module 6: Shell and Process
Shell Interpretive cycle of shell, Types of shell, Pattern matching, Escaping, Quoting, Redirection, Standard input, Standard output, Standard error, /dev/null and /dev/tty, Pipe, tee, Command substitution, Shell variables
Process Basic idea about UNIX process, Display process attributes (ps), Display System processes, Process creation cycle, Shell creation steps (init ->getty -> login -> shell), Process state, Zombie state, Background jobs (& operator, nohup command), Reduce priority (nice), Using signals to kill process, Sending job to background (bg) and foreground (fg), Listing jobs (jobs), Suspend job, Kill a job, Execute at specified time (at and batch)
(Total Hours – 6)

Assignment –
Shell - Types of shell, Pattern matching, Escaping, Quoting, Redirection, Pipe, tee, Command substitution, Shell variables
Process - Display process attributes, Display System processes, Background jobs, Reduce priority, Sending job to background and foreground, Listing jobs
(Total Hours – 6)

Suggested Readings:
1. Operating Systems, Galvin, John Wiley
2. Operating Systems, Milankovic, TMH
3. UNIX-Concepts & Applications, Sumitava Das, TMH
4. Learning UNIX Operating System, Peek, SPD/O'REILLY
5. Understanding UNIX, Srirengan, PHI 4. Essentials Systems Administration, Frisch, SPD/O'REILL

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(GE4B-02): ENTREPRENEURSHIP THEORY & PRACTICE
CreditPoint: 6Total

Credit Hours: 60 Hrs.
 Course Objective
1. To understand the function of the entrepreneur in the successful, commercial application of innovations.

2. To investigate methods and behaviours used by entrepreneurs to identify business opportunities and put them into practice.

3. To discuss how ethical behaviour impacts on business decisions for a selected business startup.

4. To get better knowledge about the necessary traits for an Entrepreneurs.

5. To build and check the feasibility of business projects and the development of the projects for the same.

6. To provide the overview of Business Ethics and its importance.

7. To understand the various Management and Business scenarios of Ethics.

8. To get the overall knowledge on corporate culture and its impact

SL NO.	Course Outcome	Mapped Modules
1.	This will help to understand the basics and needs of Entrepreneurship.	Module I - Unit 1
2	This will help Entrepreneurs develop the need and nature so, that they can run their business.	Module I - Unit 2
3	This unit helps to generate startups with various business decisions.	Module I - Unit 3
4	Helps the student to develop certain skills of Entrepreneurship.	Module I - Unit 4
5	This helps to develop business projects which develop to build business projects.	Module II - Unit 5
6	Student will able to describe examples of entrepreneurial business and actual practice, both successful and unsuccessful, and explain the role and significance of entrepreneurship as a career, in the firm, and in society.	Module II - Unit 6
7	Student will able to understand the importance and role of ethical, sustainability, innovation and global issues for strategic decision making	Module II - Unit 7

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8	Student will evaluate different modes of entering into enterpreurship. Student will able to understand the importance and role of ethical, sustainability, innovation and global issues for strategic decision making.	Module II - Unit 8

Module No.	Content	Tota l Hours	%age of questions	Covered CO	Covered PO	Blooms Level (if applicable)	Remarks (if any)
Module I Unit 1	**Introduction to Entrepreneurship**	6	1	1	8		
			0				
Module I Unit 2	Entrepreneurial Behaviour	8	1 3	2	8		
Module I Unit 3	Entrepreneurial Traits	8	1 3	3	8		
Module I Unit 4	Project Feasibility Analysis	12	2 0	4	8		
Module II Unit 5	Creativity	6	1 0	5	8		
Module II Unit 6	Innovation	8	1 4	6	8		
Module II	Understanding	6	1	7	8		

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Unit 7	the Market						
	ng the		0				
	Market						
Module	Resource	6	1	8	8		

Module I

Unit1: Introduction to Entrepreneurship [4L]

Theories of Entrepreneurship, Role and Importance of Entrepreneur in Economic Growth.

Unit 2: Entrepreneurial Behaviour   [10L]

Entrepreneurial Motivation, Need for Achievement Theory, Risk-taking Behavior, Innovation and Entrepreneur

Unit 3: Entrepreneurial Traits   [8L]

Definitions, Characteristics of Entrepreneurs, Entrepreneurial Types, Functions of Entrepreneur

Unit 4: Project Feasibility Analysis   [12L]

Business Ideas – Sources,   processing;   Input Requirements, Sources of Financing, Technical Assistance, Marketing Assistance, Preparation of Feasibility Reports, Legal Formalities and Documentation.

Module II

Unit 5: Creativity   [8L]

Introduction – Meaning - Scope – Types of Creativity – Importance of Creativity – Steps of Creativity

Unit 6: Innovation   [8L]

Introduction –Steps in Innovation – Stages of of Innovation – Technology aspects in Innovation.

Unit 7: Understanding the Market   [4L]

Types of Business: Manufacturing, Trading and Services – Market Research - Concept, Importance and Process - Market Sensing and Testing

Unit 8: Resource Mobilization   [6L]

Types of Resources - Human, Capital and Entrepreneurial tools and resources- Selection and utilization of human resources and professionals like Accountants, Lawyers, Auditors, Board Members, etc. Role and Importance of a Mentor- Estimating Financial Resources required. Methods of meeting the financial requirements – Debt vs. Equity

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Suggested Readings:

1.   Entrepreneurship, Arya Kumar, Pearson.

2.   Introducing Entrepreneurship Development, Chakraborty, Tridib, Modern Book Agency.

3.   Entrepreneurial Policies and Strategies, Manimala, M.J., TMH

4.   Everyday Entrepreneurs - The harbingers of Prosperity and creators of Jobs , Dr. Aruna Bhargava.

Course Name: Basics of Computing Code: GE4B-03

Mode- Offline/ Blended

Credits: 6

OBJECTIVE: The course is a right blend of Basic Computing and Mathematics, which enables students to gather important basic knowledge of Computers and Mathematics. This course will bridge the fundamental concepts of computers and mathematics with the present level of knowledge of the students. After completing the course students will be able to understand the fundamentals of computer, different problem solving techniques, basics of operating systems, different office operation tools, differential and integral calculus.

Duration: 60 Hours. (Theory: 40 hours + Practical: 10 hours + Tutorial: 10 hours)

Course Outcomes (CO):

Sl.	Course Outcome	Mapped modules
1.	Bridge the fundamental concepts of computers with the present level of knowledge of the students	Module-I
2.	Familiarize Organization, Peripheral Devices, Hardware and Software	Module-I
3.	Understand problem solving techniques, basics of Unix and Windows O.S. and its operations	Module-II, Module-III
4.	Demonstrate the Office Automation Tools	Module-III, Module-IV
5.	Understand Differential Calculus and Integral Calculus	Module-V, Module-VI

Module	Content	Total Hours	%age of questions	Blooms Level	Remarks (If any)
Module-I	Fundamentals of Computing	10	15	1,2	Theory
Module-II	Approaches to Problem Solving	5	25	3	Theory
Module-III	Operating System and Services in O.S.	5	15	3	Theory

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Module-IV	Office Automation Tools	10	10	4	Lab
Module-V	Differential Calculus	18	20	5	Theory
Module-VI	Integral Calculus	12	15	5	Theory

Detailed Syllabus:

Module-I:
Introduction to
Computers[10]

Introduction and Characteristics, History and Evolution, **Generations of Computer** (I-V), **Organization of Computers**, Block Diagram of a Computer, Von Neumann Architecture, Applications of Computers in Various Fields, **Input Devices** and functions of the different units, **Output Devices** and functions of the different units, Memory Unit, CPU (ALU+CU) , **Computer Languages** – Machine Language, Assembly Language, High-level Language, Features of Good Language. **Language Translators** - Compiler, Interpreter, Assembler, **Memories** [Memory Hierarchy], Registers [Types of Registers], Cache Memory, **Primary Memory** - RAM, DRAM and SRAM, ROM, ROM BIOS/ Firmware, Types of ROM, **Secondary Memory** - Hard Disk, Structure of a Hard Disk, how data is stored in a hard disk, concept of tracks, sectors, clusters, cylinders, formatting of hard disk (Low Level Formatting and High Level Formatting), Blu-Ray Disc [Data Storage Mechanism], Flash Drives/e-MMC, **Concept of Hardware & Software**, System Software, Operating System, Functions and Types of O/S, Utility Programs, Communication Software, Performance Monitoring Software, Application Software

MODULE-II: Approaches to
Problem Solving[5]

Approaches To Problem Solving, Algorithm : Introduction, Definition, Characteristics, Expressing Algorithm and General Approaches in Algorithm Design, Analysis of Algorithms, Advantages and disadvantages, Examples **Flowchart:** Definition, When to Use Flowcharts, Flowchart Symbols and Guidelines, Types of Flowcharts, Examples, Advantages and Disadvantages, Limitations of using Flowcharts.

MODULE-III: Operating System and
Services in O.S.[5]

Fundamentals of Operating System, Types of O.S. and Functions, Structure of O.S., Components, Conceptsof Multitasking, Multiprogramming, Timesharing, Basics of Memory Management.

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Introduction to Unix/DOS Operating system – History, Files and Directories, Internal and ExternalCommands, Batch Files

Windows Operating Environment - Features of MS – Windows, Control Panel, Taskbar, Desktop, WindowsApplication, Icons, Windows Accessories, Notepad, Paintbrush.

MODULE-IV: Office Automation Tools - Skill Enhancement MS Office[10]

i) **Microsoft Word** - Page Layout, Fonts, Word Art, Paragraph Styling, Indentation, Mail Merge, NavigationPane, Macro, Themes, Tables, Idea About Saving Files In Different Formats, Font Embedding.
 ii) **Microsoft Excel** - Basic functionality of MS-Excel, Functions - Mathematical, Statistical and Data Retrieval(Vlookup, Hlookup), Goal Seek, Pivot Table, Cross Worksheet Operations
 iii) **Microsoft PowerPoint** - Types of Layouts, Using The Slide Master View, Animations, Slide Transition,Design and themes.

MODULE V: Differential Calculus [18]

Function of single variable: Explicit and Implicit Function, Parametric Equations, Single valued and Multiple Valued Function, Monotonic and Bounded function, Representation of functions Graphically, Limit:Definition, Cauchy General Principle for Convergence of Limit, Simple Examples, Continuity: Definition, Example on Simple and Jump Discontinuity
Differentiation: Definition, Derivative of Algebraic, Exponential, Logarithmic, Trigonometric, Inverse functions (Up to Second order), Logarithmic Differentiation, Derivative of Products, Examples.
Mean Value Theorem: Rolle's Theorem, Lagrange and Cauchy MVT (Statement Only) with applications.Taylor's Series.
Indeterminate Forms: L' Hospital Rule. Examples.
MODULE   VI:
Integral
Calculus[12]

Integrations: Indefinite Integrals, Integration Rules, Integration by Parts, (Algebraic Rational, Exponential, Trigonometric functions), Definite Integrals: Definition, Geometrical Interpretation, Definite Integral as Limit of a Sum, Area of Plain Regions.

Suggested Readings:

- Satish Jain, M. Geetha, Kratika, Microsoft Office 2010, BPB
- Dr. Milind M. Oka, Computer Fundamentals, Everest Publication House
- V. Rajaraman, Computer Basics and C Programming, Eastern Economy Edition

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- Dr. A. K. Gupta, Management Information System, S. Chand Publisher
- Kogent Learning Solutions INC, Windows 7 in Simple Steps, dreamtech Press
- B. C. Das, B. N. Mukherjee, Differential Calculus, U. N. Dhar and Sons Pvt. Ltd.
    B. C. Das, B. N. Mukherjee, Integral Calculus, U. N. Dhar and Sons Pvt. Ltd.

SEMESTER-5

Paper : CLEAN UPS & MATTE PAINTING

Code : BVFM 501

Course Objective: The course is designed to learn Wire Removal and Rig Removal using Clone and Tools,removing actors wire Using Clone and Foundary Tools.Removing unnessarry Things from the Sequence Using Foundary Rig Removal Tool. Changing background colours & using garbage masks, Lumakeying on Smoke footages, Explosion. Making clean plates. The technique used in photography and special effects filmmaking to combine two or more image elements into a single, final image, see Matte (filmmaking).Essential & Advanced Matte Painting Techniques,Sky Replacement / Building Reference Library, 2D Set Extension / Daytime Lighting,Day for Night / Moon Lighting.Cityscapes / Atmospheric fog and pollution.The focus is on learning advanced workflow techniques required in a visual effects studio and its Digital Matte Painting department. Students will learn how to digitally manipulate images of existing interior and exterior locations. How to judge image manipulation and painting quality will be demonstrated by applying key workflow concepts from classical painting.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

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Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Clean plates	10	25		
M 2	Colour Correction and placement	5	25		
M 3	Concept of Matte Painting	5	25		
M 4	Advanced Matte Painting	10	25		
		30	**100**		

Paper Code: BVFM- 501
CLEAN UPS & MATTE PAINTING
Total Credit: 4
Total hours: 30 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- Clean plates** • Introducing On how to create and need of clean plate • The integrated Matte Channel • Multi source operators: over, mix, subtract, In, Out, Atop. Masks, compositing with pre multiplied images. • Color difference method, specialized keying software, Matting techniques: garbage mattes, edge mattes, combining mattes, manipulating mattes	10
2.	**Module 2- Colour Correction and placement** • Colour Corrections, • Colour Enhancements, • Colour Grading • Compositing live footage characters with different matte and 3D BG	5
3.	**Module 3- Concept of Matte Painting** • Knowing about all types of Clone tool, brush tool, smudge, blur, content aware too, sharpen tool...)	5

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	• Introduction to Digital Painting • Creating painted representation of a landscape, set, or distant location that allows to create the illusion of an environment that is not present at the filming location. • Working on Creation of an imaginary or realistic set for filmmaking with digital or traditional painting.	
4.	**Module 4- Advanced Matte Painting** • Line of Force – Horizontal, Vertical, Diagonal, Centrifugal, Centripetal – • Dynamizations of images. Comparative Study of Image resolution • Lighting and Colour Temperature. And will go in-depth into what matte painting.	10

Ref Books:

1. The Basics of Matte Painting by CONRAD ALLAN

2. Composition of Outdoor Painting by Edgar Payne

3. Vision: Color and Composition for Film by Hans Bacher

4. Color and Light: A Guide for the Realist Painter by James Gurney

5. Framed Perspective Vol.1 & Vol.2 by Marcos Mateu-Mestre

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Paper : CLEAN UPS & MATTE PAINTING (lab)

Code : BVFM 591

Course Objective: The course is designed to learn Wire Removal and Rig Removal using Clone and Tools,removing actors wire Using Clone and Foundary Tools.Removing unnessarry Things from the Sequence Using Foundary Rig Removal Tool. Changing background colours & using garbage masks, Lumakeying on Smoke footages, Explosion. Making clean plates. The technique used in photography and special effects filmmaking to combine two or more image elements into a single, final image, see Matte (filmmaking).Essential & Advanced Matte Painting Techniques,Sky Replacement / Building Reference Library, 2D Set Extension / Daytime Lighting,Day for Night / Moon Lighting.Cityscapes / Atmospheric fog and pollution.The focus is on learning advanced workflow techniques required in a visual effects studio and its Digital Matte Painting department. Students will learn how to digitally manipulate images of existing interior and exterior locations. How to judge image manipulation and painting quality will be demonstrated by applying key workflow concepts from classical painting.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Clean plates	10	40		
M 2	Colour Correction and placement	10			
M 3	Concept of Matte Painting	10	40		
M 4	Advanced Matte Painting	10			
		40	**80**		

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Paper Code: BVFM 591
CLEAN UPS & MATTE PAINTING (lab)
Total Credit: 2
Total hours: 40 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- Clean plates** • Generating a Clean plate/ Prepping • Core skills of placing clean plate • How Footage from a camera that is transferred into a computer becomes a digital subset of elements • Several methods for removing unwanted objects in a shot • Working on Different Live action footages	10
2.	**Module 2- Colour Correction and placement** • Placing the clean plate with track and cards • Clean-up & Cloning • Matching film grains • Colour correction with actual original plate. • stylising, creating a look • fixing shooting issues such as wrong white balance • matching shots in a sequence • integrating elements such as a matte painting or CG to match with live-action footage • Working on Different Live action footages • compositing live footage characters with different matte and 3D BG	10
3.	**Module 3- Concept of Matte Painting** • Creating a matte painting, starting with the initial concept sketch. • Adding light and shadow, texturing elements, and incorporating motion and depth. • Reference Gathering from different images and creating a matte paint with projections on Landscape and City scape for desired output.	10
4.	**Module 4- Advanced Matte Painting** • Create photorealistic paintings and elements that match concept using 3D and 2D tools and techniques including camera setup, modeling for projection, camera	10

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| | animation, projection setup, image re-projection, and atmospherics and light passes.
• Provide or acquire photographic reference materials.

• Combine photographic, paint, and 3d assets to conceptualize, create and design environments using techniques such as camera animation, image projection, layering, and lighting.
• Perform tasks related to integrating imagery into shots, preserving a unified sense of lighting, perspective, and color.
• Assignments will be done on following above points induvially. | |

Suggested Softwares : Nuke
                          Adobe Photoshop
                          Syntheyes

Ref Books:

1. The Basics of Matte Painting by CONRAD ALLAN
2. Composition of Outdoor Painting by Edgar Payne
3. Vision: Color and Composition for Film by Hans Bacher
4. Color and Light: A Guide for the Realist Painter by James Gurney
5. Framed Perspective Vol.1 & Vol.2 by Marcos Mateu-Mestre

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Paper : CAMERA TRACKING + MATCH MOVING

Code : BVFM 502

Course Objective: Matchmoving or 3d tracking is a vfx concept that is used for tracking the camera movement information.it is an important aspect in the VFX.

Where the collected camera movement information are used by CG artist who combines 3d characters into the live-action footage so the actors can interact with the CG character.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	2D Tracking	6	25		
M 2	3d Camera Tracking	10	25		
M 3	Match moving	10	25		
M 4	Creating Point for tracks	4	25		
		30	**100**		

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CAMERA TRACKING + MATCH MOVING
Total Credit: 4
Total hours: 30 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- 2D Tracking** • 2D Motion Track, Camera Track, Object Track, Corner Points Tracking and Stabilizing . • Extract animation data from the position, rotation, and size of an image. • Using expressions, they can apply the data directly to transform and match-move another element. • Invert the values of the data and apply them to the original element - again through expressions - to stabilize the image.	6
2.	**Module 2- 3d Camera Tracking** • Working with 3d cameras, importing Maya camera, • Importing Point cloud data and constraints, With the Camera • Tracker node, you can track the camera motion in 2D sequences or stills to create an animated 3D camera or a point cloud and scene linked to the solve. • Track features, add User Tracks or tracks from a Tracker node, mask out moving objects using a Bezier or B-spline shape, and edit your tracks manually. • How Camera Tracker can solve the position of several types of cameras as well as solve stereo sequences. • Working With 3d camera. Importing Maya camera, Importing Point cloud data and constraints.	10
3.	**Module 3- Match moving** • Introducing Match moving and its uses • Understanding Perspectives and Measurements, Cameras and its functions, Focus, Shutter Speed, Angle of View, Exposure, Distance, Tripod Match moving on image sequence the position and characteristics of the camera that shot. • How to use the parallax of features tracked within the shot to ascertain this and just requires a sequence shot with a moving camera. • To calculate and reveal the 3D positions of a number of feature points within the shot. Those camera and feature points can then be used for 3D, compositing and motion graphics work, to allow seamless integration into the source shot.	10

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4.	**Module 4 - Creating Point for tracks** • Point clouds are a useful starting point for 3D modelling and can be helpful in positioning 3D objects into a scene. • Using the PointCloudGenerator node, • Create a dense point cloud based on the information generated by Camera Tracker and use the points to create a 3D mesh of your 2D footage.	4

Suggested Softwares : Nuke
                            Adobe Photoshop
                            Syntheyes

REFERENCE BOOKS

1.THE ART AND TECHNIQUE OF MATCHMOVING: SOLUTIONS FOR THE VFX ARTIST BY ERICA HORNUNG.
2.Match moving: The Invisible Art of Camera Tracking, 2nd Edition by Tim Dobbert.
3.The Art and Technique of Match moving by Erica Hornung.
4.Nuke 101: Professional Compositing and Visual Effects Pdf
5.NUKE USER GUIDE by foundry pdf

REFERENCE LINK

http://WWW.CREATIVEBLOQ.COM/3D/HOW-FIX-IMPOSSIBLE-MATCHMOVE-71515920
https://CGI.TUTSPLUS.COM/ARTICLES/26-TRACKING-AND-MATCHMOVING-TUTORIALS–AE-7394
http://WWW.CREATIVEBLOQ.COM/3D/HOW-FIX-IMPOSSIBLE-MATCHMOVE-71515920
https://WWW.LYNDA.COM/MATCHMOVER-TUTORIALS/SOLVING-CAMERA/155283/162754-
http://index-of.es/EBooks/English/Matchmoving_The_Invisible_Art_of_Camera_Tracking_2005_Sybex.pdf

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Effective from academic session 2020-2021

Paper : CAMERA TRACKING + MATCH MOVING (lab)

Code : BVFM 592

Course Objective: The students will learn Tracker Node Basics, stabilizing a Shot, Tracking Four Points, understanding tracking points, tracking a picture in the frame, Changing the Tracker settings, Replacing the picture, adjusting the source pins, adding motion blur. Using Positional data to move or stabile footage or elements, tracking vectors, Tracking 3d using a virtual camera and objects in 3d space. Advanced techniques in match moving creating points and cards. Understanding Perspectives and Measurements, Cameras and its functions, Focus, Shutter Speed, Angle of View, Exposure, Distance, Tripod. Students at Match move Course will learn Tilt and pan shots, Object tracking, Character tracking, Crane, Drone shot and export these shot in to 3D software and start blocking.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**2D Tracking**	7	40		
M 2	**3d Camera Tracking**	12			
M 3	**Match moving**	12	40		
M 4	**Creating Point for tracks**	9			
		40	**80**		

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Paper Code: BVFM- 592
CAMERA TRACKING + MATCH MOVING (lab)
Total Credit: 2
Total hours: 40 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- 2D Tracking** - Viewing Track Data - Troubleshooting Sequence Tracks - Extending Existing Camera Tracks - Retracking Partial Frame Ranges ○ General process for tracking an image: <table><tr><td>1.</td><td>Connect a Tracker node to the image you want to track.</td></tr><tr><td>2.</td><td>Use auto-tracking for simple tracks or place tracking anchors on features at keyframes in the image.</td></tr><tr><td>3.</td><td>Calculate the tracking data.</td></tr><tr><td>4.</td><td>Choose the tracking operation you want to perform: stabilize, match-move, etc.</td></tr></table> - Tracking footages for enhancements. - Assignments will be done on following above points indusial on different live footages.	7
2.	**Module 2- 3d Camera Tracking** - Adding and Positioning User Tracks - User Tracking Methods - Tracking Assists - Tracking a Scene Manually - Linking Still Reference Frames - Assigning 3D Survey Points - Assignments will be done on following above points induvial on different live footages.	12
3.	**Module 3- Match moving** - Solving the Camera Position - Viewing Solve Data - Troubleshooting Solves - Adjusting the Scene - Setting the Ground Plane and Axes - Transforming the Scene Manually - Using Scene Contraints - Assignments will be done on following above points	12

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	induvial on different live footages.	
4.	**Module 4 - Creating Point for tracks** • Creating Camera Nodes • Creating Scenes • Creating Point Clouds • Creating Cards • Combining Solves • Placing Objects in the Scene • Accounting for Lens Distortion • Assignments will be done on following above points induvial on different live footages.	9

Suggested Software : Syntheyes
                              Nuke

REFERENCE BOOKS

1.THE ART AND TECHNIQUE OF MATCHMOVING: SOLUTIONS FOR THE VFX ARTIST BY ERICA HORNUNG.
2.Matchmoving: The Invisible Art of Camera Tracking, 2nd Edition by Tim dobbert.
3.The Art and Technique of Matchmoving by Erica Hornung.
4.Nuke 101: Professional Compositing and Visual Effects Pdf
5.NUKE USER GUIDE by foundry pdf

REFERENCE LINK

http://WWW.CREATIVEBLOQ.COM/3D/HOW-FIX-IMPOSSIBLE-MATCHMOVE-71515920
https://CGI.TUTSPLUS.COM/ARTICLES/26-TRACKING-AND-MATCHMOVING-TUTORIALS–AE-7394
http://WWW.CREATIVEBLOQ.COM/3D/HOW-FIX-IMPOSSIBLE-MATCHMOVE-71515920
https://WWW.LYNDA.COM/MATCHMOVER-TUTORIALS/SOLVING-CAMERA/155283/162754-
http://index-of.es/EBooks/English/Matchmoving_The_Invisible_Art_of_Camera_Tracking_2005_Sybex.pdf

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Syllabus of B.Sc.in VFX Film Making (CBCS)
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Code: BVFM 503

Course Objective: This course will prepare the students with a thorough introduction to the foundations of film craft and with knowledge, skills of visual effects with integration of live action footage and Computer Graphics elements to create realistic imagery for superior Industry and Entrepreneurship vocations as Filmmakers. Catering to Media, Education and Entertainment sectors in particular and in rest all business sectors in general. Besides, they will be able to advance their expertise in areas filmmaking, animation, and game design through higher education, research, continuous learning, and applications with ethics and social. It will also focus on learning how to create a visual sense of depth in your digital painting, as well as how to create a visual sense of story. They illustrate the script, plan shots, demonstrate action, and maintain continuity between scenes. The students will be able to make their own storyboards and animatic.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Film Making as an experimental medium	10	25		
M 2	Film Production Design Designing Character, Set and Props and shoot planning	10	25		
M 3	Cinematography and Frame Capturing	10	25		
M 4	After shoot post production process	10	25		
		40	**100**		

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Syllabus of B.Sc.in VFX Film Making (CBCS)
Effective from academic session 2020-2021

LIVE ACTION FILM MAKING (Experimental)
Total Credit: 4
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1 - Film Making as an experimental medium** • Film Production Fundamentals, Basic Requirements for Film making, choosing a story for Film making.	4
2.	**Module 2 – Production design, Shoot Planning, Locations and Characters Look development.** • Creating the visual story using thumbnails, shot breakdown, shot types, continuity, camera angles, camera movements, creating cinematic storyboard, costume designs and look development.	10
3.	**Module 3 – Cinematography and shooting** • Setting up the camera • Layout & composition of Characters props and environment, time and location • Do's & Don'ts • Capturing the frames and shooting the raw footages • Capturing BGs (Backgrounds) and still photographs for Vfx requirements	8
4.	**Module 4 – Editing, Vfx ,color correction ,Audio and sound, final mixing** • Converting raw footages for edit • Creating audio library • Understanding and creating effects for better output • Editing as per the required scene mood • Recording audio and BGM • Compositing as per VFX requirements • Final colour Grading and sound mixing • Final Output	8

Softwares – Adobe Photoshop
Adobe premier
Adobe After effects
Nuke

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Syllabus of B.Sc.in VFX Film Making (CBCS)
Effective from academic session 2020-2021

Suggested Readings:-

1. *The Filmmaker's Handbook: A Comprehensive Guide for the Digital Age (2013 Edition) by Steven Ascher and Edward Pincus*

2. *On Directing Film (1992) by David Mamet*

3. *Easy Riders, Raging Bulls: How the Sex-Drugs-and-Rock 'N' Roll Generation Saved Hollywood (1999) by Peter Biskind*

4. *Directing: Film Techniques & Aesthetics (Fifth Edition, 2013) by Michael Rabinger and Mick Hurbis-Cherrier*

5. *On Film-making: An Introduction to the Craft of the Director (2005) by Alexander Mackendrick, edited by Paul Croni*n

Paper: LIVE ACTION FILM MAKING (Experimental) Lab

Code: BVFM 593

Course Objective: : This course will emphasis and prepare the students with a thorough introduction to the foundations of film craft .Film making process and with knowledge , skills of visual effects with integration of live action footage and Computer Graphics elements to create realistic imagery for superior Industry and Entrepreneurship vocations as Filmmakers. Catering to Media, Education and Entertainment sectors in particular and in rest all business sectors in general. The students will learn how to make a live action film on their own.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Aspects of acting and direction	3	25		

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M 2	Acting for Animation & Character Performance	3	25		
M 3	Different Aspects of acting	4	25		
M 4	Creative Approach	10	25		
		20	**100**		

Paper Code: BVFM- 593
LIVE ACTION FILM MAKING (Experimental) Lab
Total Credit: 2
Total hours of lectures: 30 hours

Sl.	Topic/Module	Hour
1.	**Module 1 - Film Making as an experimental medium** • Watching ref video of Film Making process and script development	4
2.	**Module 2 – Production design, Shoot Planning, Locations and Characters Look development.** • Creating story boards thumbnails before shoot • Designing of clean plates required for shoot • Location Racke • Costume development • Preparing story board lineup (previz)	8
3.	**Module 3 – Cinematography and shooting** • Shooting with camera • Lights and costumes • Completing all shots according to storyboard and script	10
4.	**Module 4 – Editing, Vfx ,color correction ,Audio and sound, final mixing** • Transferring raw footage for edit • Vfx shot compositing • Recording dialogues, sound and special effects • Final mixing	8

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• Colour correction according to film requirement • Rendering final output	

Softwares – Adobe Photoshop
Adobe premier
Adobe After effects
Nuke

Suggested Readings:-

1. *The Filmmaker's Handbook: A Comprehensive Guide for the Digital Age (2013 Edition) by Steven Ascher and Edward Pincus*
2. *On Directing Film (1992) by David Mamet*
3. *Easy Riders, Raging Bulls: How the Sex-Drugs-and-Rock 'N' Roll Generation Saved Hollywood (1999) by Peter Biskind*
4. *Directing: Film Techniques & Aesthetics (Fifth Edition, 2013) by Michael Rabinger and Mick Hurbis-Cherrier*
5. *On Film-making: An Introduction to the Craft of the Director (2005) by Alexander Mackendrick, edited by Paul Croni*n

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Syllabus of B.Sc.in VFX Film Making (CBCS)
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Paper: DIGITAL PHOTOGRAPHY

Code: BVFM 504

Course Objective: This course will emphasise on the history and technical evolution of Professional cameras, the component of cameras and functionalities, the rules of composition for photography, functionalities of cameras and setting up accessories. The students would be applying the techniques of lighting and application of tripods and other camera accessories to capture a good composition in cinematography & Photography.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Introduction to Photography**	3	25		
M 2	**Cameras and Accessories**	3	25		
M 3	**Framing and Composition**	4	25		
M 4	**Basics of Photography and Lighting**	10	25		
		20	**100**		

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Digital Photography
Total Credit: 6
Total hours of lectures: 60 hours

Sl.	Topic/Module	Hour
1.	**Module 1 - Introduction to Photography** History of camera , camera obscura, parts of camera, analog and digital cameras, pixel, raster and vector, resolution, functions of camera, viewfinder. SLR, DSLR cameras, Focus, aperture, white balance, Depth of Field, shutter speed, ISO, exposure, F-Stops.	8
2.	**Module 2 – Cameras and Accessories** Types of Cameras : point Shoot , High end consumer cameras, Lenses, Type of lenses(prime, zoom ,micro),Digital Single Lens, Reflex Cameras (Digital SLRs) Focal length, camera settings, setting white balance, sunny 16 rule, metering , Tripod- qualities , Types , Functions , speed light, reflectors. Camera equipment, types of photography (wedding, wild, portrait, street, architecture, product	10
3.	**Module 3 – Framing and Composition** Simple Rules for framing Human Subjects, Headroom , Subjective vs Objective Shooting angles, Look Room, Rule of thirds, Camera Angles, Camera moves, types of shots(extreme long shot, long shot, medium shot ,medium close up shot, close up shot) and angles (low angle, high angle, tilt POV, Birds eye view).180 degree rule Framing composition with two people, The profile two –shoot, high angle, over the shoulders , wrapping up composition.	12
4.	**Module 4 – Basics of Photography and Lighting** Aperture, F-Stop, Depth of Field, factors determining the depth of field, depth of focus, lens and focal length, focal plane, angle of coverage and characteristics of lenses, the setting of aperture and shutter and how they are relatively and arithmetically arranged, types of shutter, types of photography General Lighting concepts, Foot candles, Kelvin, Fundamentals of Lighting, natural and artificial light source, basi portrait lighting, three point lighting.	10

Suggested Readings:-
1. The Elements of Photography, Belt, Angela Faris,Focal
2. ASMP Professional Business Practices in Photography, Carr, Susan, Allworth Press
3. Photoshop CS6 in Simple Steps, Kogent Learning Solutions Inc., Dreamtech Press
4. Basic Photography: Post Production Black & White, Macleod, Steve, AVA Book

Online References:
https://www.studiobinder.com/blog/cinematography-techniques-no-film-school/
1. http://vision.cse.psu.edu/courses/CompPhoto/PhotoIntro.pdf

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<mark>Paper</mark>: WRITING AND PRESENTATION SKILLS

Code: BVFM 505

Course Objective: The course is designed To make the students aware of the fundamental concepts of critical reasoning and to enable them to read and respond critically, drawing conclusions, generalizing, differentiating Fact from opinion and creating their own arguments. To assist the students in developing Appropriate and impressive writing styles for various contexts.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Writing with Impact**	10	25		
M 2	**Writing short ,Clear and right**	10	25		
M 3	**Public Speaking Foundations**	10	25		
M 4	**Designing Presentation**	10	25		
		40	**100**		

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Writing and Presentation Skills
Total Credit: 6
Total hours of lectures: 60 hours

Sl.	Topic/Module	Hour
1.	**Module 1 - Writing with Impact** • Fundamental concepts of Critical reasoning. • Appropriate and impressive writing styles for various concepts • Writing with impact through example • Learning about the readers • Understanding how people read • Directing the eye with page elements • Grabbing readers attention	15
2.	**Module 2 - Writing short ,Clear and right** • Getting to the point • Shortening sentences • Managing paragraph lengths • Bringing out your voice • Sticking to one idea at a time • Untangling grammar • Exploiting the power of verbs • Using sentence for rhythm effect • Matching style to genre	15
3.	**Module 3 – Public Speaking Foundations** • Preparing a speech -Identifying your audience - Know why you are talking – Outlining the speech – Finding story – Research – Managing pre-performance anxiety • Opening and Delivering Speech –Develop credibility – Explore the strong openings – Introducing the agenda – develop vocal variety – practice great body language – use props and visual aids – anticipate tech mishaps -	15
4.	**Module 4 – Designing Presentation** Soft skills for academic presentations - Effective communication skills –Structuring the presentation - Choosing appropriate medium – Flip charts – OHP – Power Point presentation – Clarity and brevity - Inter-action and persuasion - Interview skills – Group Discussions.	15

Suggested Software – Microsoft Word

Power Point

Suggested Readings -

1. Write Tight: Say Exactly What You Mean with Precision and Power by William Brohaugh
2. Everybody Writes: Your Go-To Guide to Creating Ridiculously Good Content by Ann Handley

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SEMESTER-6

Paper : LIVE ACTION ; COMPOSITING, SET EXTENSION

Code : BVFM 601

Course Objective: This Course creates the final image of a frame, shot or VFX sequence. They take all the different digital materials used (assets), such as computer-generated (CG) images, live action footage and matte paintings, and combine them to appear as one cohesive image and shot.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**2D Compositing**	10	25		
M 2	**Retiming**	5	25		
M 3	**Morphing**	7	25		
M 4	**Colour Curves and White & Black Levels**	8	25		
		30	**100**		

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LIVE ACTION ; COMPOSITING, SET EXTENSION

Total Credit: 4

Total hours: 30 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- 2D Compositing** • How compositing and Finishing (sometimes called 2D or 2D VFX) is a crucial part of any VFX project and is used across films, TV and commercials. • What are the final step of the visual effects pipeline which consists in putting all the CGI elements together in order to present a complete and finished product.	10
2.	**Module 2- Retiming** • Work on slow down, speed up, or even reverse select frames in a clip without necessarily altering its overall length. • Technique for optimizing sequential circuits. • How to repositions the registers in a circuit leaving the combinational portion of circuitry untouched. • How to central objective of retiming is to find a circuit with the minimum number of registers for a specified clock period.	5
3.	**Module 3- Morphing** • Concepts of Distortions, Camera and scene parameters two images together so that the subject of one image seems to change shape and turn into the subject of the other through a seamless transition	7
4.	**Module 4 - Colour Curves and White & Black Levels** • Allows to make contrast, gamma, gain, and offset adjustments (and, in fact, many others) using lookup tables (LUTs). LUTs refer to line graphs of a given color channel's brightness.	8

REFERENCE BOOKS

1.Nuke 101: Professional Compositing and Visual Effects Pdf
2.NUKE USER GUIDE by foundry pdf
3. Sze Chianly / Samantha Goh, Digital Compositing with Nuke 101, Fatbars   Limited-2010
4.Ganbar R, NUKE 101. Professional Compositing and Visual Effects -
 Paper : LIVE ACTION ; COMPOSITING, SET EXTENSION (lab)

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Effective from academic session 2020-2021

Code : BVFM 691

Course Objective: The Students will develope advanced compositing skills with a focus on various pipeline workflows and shot finishing. Students will practice advanced compositing techniques using plates from actual film projects. Students will also learn stereo compositing techniques and workfloCompositing the two elements together ,Changing properties for a single view,3D Scene Setups,Moving Images with a 3D Scene.Setting up a Nuke 3D scene.Navigating the 3D world,Importing a camera,Creating a cube,Reconcile3D: Transforming 3D Data into 2D Data,Setting up a Reconcile3D node,Using Reconcile3D's output with a Tracker node,Final Disclosure.Understanding Nuke's Approach to Color,Color Manipulation Building Blocks,Dynamic range,Using an I/O Graph to Visualize Color Operations,Creating Curves with ColorLookup,Color Matching with the Grade Node,Using the Grade node,Using CurveTool to match black and white points,Matching midtones by eyeAchieving a "Look" with the ColorCorrect Node,Using the ColorCorrect node,Using the mask input to color correct a portion of the image.Importing files, Setup the preference for Comp and Creating basic Comp & creating composition,arranging nodes and tress.Colour correction Foreground images according to Background or vice versa, Colour Matching the image based on Reference Image, Colour Replacing certain portation of the Image.Morphing, Image to image morphing and Motion morphing.Retiming a sequence slow and fast effect, Speed up the sequence Using Retiming and Warping.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)

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M 1	**2D Compositing**	15	40		
M 2	**Retiming**	6			
M 3	**Morphing**	10	40		
M 4	**Colour Colour Curves and White & Black Levels**	9			
		40	**80**		

Paper Code: BVFM- 691
LIVE ACTION ; COMPOSITING, SET EXTENSION (lab)
Total Credit: 2
Total hours: 40 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- 2D Compositing** • Compositing the two elements together. • Changing properties for a single view • Approach to Color Manipulation Building Blocks, Dynamic range, • Dynamic range, Using an I/O Graph to Visualize Color Operations, Creating Curves. • Post Effect Filters (Blur, Glow, Compose, Text, Film etc..,) • Assignments will be done on following above points induvial on different live footages.	15
2.	**Module 2- Retiming** • Temporal Median • Time Wrap • Time offset • Time Blur • Time Echo • Of low retiming • Assignments will be done on following above points induvial on different live footages. • Distorted, long pan, zoom, dolly, crane and motion blur and stabilize shot	6

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3.	**Module 3- Morphing**	10
	- Warping - Transforming and animating wraps - Warping with Grid wrap trackers - Temporal Operations - Assignments will be done on following above points induvial on different live footages. - Morphing two different character face together as Assignments. - Morphing two different Bg together as Assignments.	
4.	**Module 4 - Colour Curves and White & Black Levels**	9
	- Work with colour curves. - Working with colour Wheel - RGB Colour Matching - Working with premult,Addchannel,Channel Merge - Working with Grade node - Working with Shuffle, Shuffle copy and Copy nodes - Assignments will be done on following above points induvial on different live footages.	

Suggested Softwares : Nuke
Adobe Photoshop
Syntheyes

REFERENCE BOOKS

1.Nuke 101: Professional Compositing and Visual Effects Pdf
2.NUKE USER GUIDE by foundry pdf
3. Sze Chianly / Samantha Goh, Digital Compositing with Nuke 101, Fatbars Limited-2010
4.Ganbar R, NUKE 101. Professional Compositing and Visual Effects -

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Effective from academic session 2020-2021

Paper : ADVANCE COMPOSITING & CG INTEGRATION

Code : BVFM 602

Course Objectives:

Compositing is the **process of combining multiple images to form a single, cohesive image**. It's a common visual technique in photography and film. In the early days of film and photography, compositing was done by manually cutting and pasting together photographs or film prints

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Multipass Compositing**	10	25		
M 2	**Deep compositing**	5	25		
M 3	**CG and 2D element Integration**	10	25		
M 4	**Colour Lookup**	5	25		
		30	**100**		

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Paper Code: BSC(VFM)- 602
ADVANCE COMPOSITING & CG INTEGRATION
Total Credit: 4
Total hours: 30 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- Multipass Compositing** • Introduction to advanced 2D animation compositing and Ink paint techniques. • Creating color models as per the model sheets. Creating color pallets as required paint and ink fields. Understand the dope sheets / X- sheets in production level. • Arranging and adjusting the layers as per X- sheet. Advanced panning of camera and background, multiple cameras for showing depth in-between background, over lay and character layers. • Introduction to compositing special effects into a scene using 3d graphics and 3d special effects in 2d layers. Concepts for Broadcast animation for logos, channel IDs and montages. Multi-Layer Compositing, Special Effects, Superimposition and Titling. Exporting various file format outputs as per the end user requirements.	10
2.	**Module 2- Deep compositing** • Concept of Film LUTS and 2D image contains a single value for each channel of each pixel. In contrast, deep images contain multiple samples per pixel at varying depths and each sample contains per-pixel information such as color, opacity, and camera-relative depth. • Introducing how core deep comp is a different way of rendering and working with visual elements. Rather than layering a series of flat 2D renderings of say 3D imagery one on top of another – often times with hold-out mattes • How deep compositing aims to provide a channel of data in the rendered image that defines not a single Z depth for a point in the image (or pixel value), but rather an array of values that defines how say the fog density changes in front and behind a point in space represented at a pixel value.Concept of film grains and matching it.	5

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3.	**Module 3- CG and 2D element Integration**	10
	• Concept to do the **integration** of live action footage and other live action footage or **CG elements** to create realistic imagery.	
4.	**Module 4 - Colour lookup**	5
	• Concept to make contrast, gamma, gain, and offset adjustments (and, in fact, many others) using lookup tables (LUTs). LUTs refer to line graphs of a given color channel's brightness. • How to use the horizontal axis represents the channel's original, or input, values, and the vertical axis represents the channel's new, or output values.	

REFERENCE BOOKS

1.Nuke 101: Professional Compositing and Visual Effects Pdf
2.NUKE USER GUIDE by foundry pdf
3. Sze Chianly / Samantha Goh, Digital Compositing with Nuke 101, Fatbars   Limited-2010
4.Ganbar R, NUKE 101. Professional Compositing and Visual Effects -

Paper : ADVANCE COMPOSITING & CG INTEGRATION (lab)

Code : BVFM 692

Course Objectives: This course allows the students how to set up a 3D scene in Nuke, and how to add objects and cameras in the 3D workspace. Working with Multipass compositing using blend modes and colour correcting according to requirement of a live action plate.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3,M4

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6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	**Multipass Compositing**	10	40		
M 2	**Deep compositing**	5			
M 3	**CG and 2D element Integration**	15	40		
M 4	**Colour lookup**	5			
		40	**80**		

Paper Code: BVFM- 692
ADVANCE COMPOSITING & CG INTEGRATION (lab)
Total Credit: 2
Total hours: 40 Hrs

Sl.	Topic/Module	Hour
1.	**Module 1- Multipass Compositing** • Multipass compositing using blend modes • Working with Exr Files • Light and geometry in nuke. • Working nuke Zdepth and motion Blur. • Assignments will be done on following above points induvial on different live footages and render images.	15

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2.	Module 2- **Deep compositing**	5
	- Alembic geometry - Modelling 3D geometry from a 2D scene - Creating point clouds from CG renders - HDRs,Finding proper lighting and correct lighting models to real interaction between the CGI character - Light wrap, match lens curvature and properties. - modeling set from live shoot footage and gathering survey data for tracking - - Assignments will be done on following above points induvial on different live footages and render images.	
3.	Module 3- **CG and 2D element Integration**	15
	- The integration of CG elements into real-world footage. - Matching Camera Movements - Matching Light - Matching Film Grains - Matching Blurs and Defocus - Assignments will be done on following above points induvial on different live footages and render images.	
4.	Module 4 - **Colour lookup**	5
	- Work with colour curves. - Working with colour Wheel - RGB Colour Matching - Working with premult,Addchannel,Channel Merge - Working with Grade node - Working with Shuffle, Shuffle copy and Copy nodes - Assignments will be done on following above points induvial on different live footages and render images.	

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   2010
4.Ganbar R, NUKE 101. Professional Compositing and Visual Effects -