J. C. Bose University of Science and Technology, YMCA, Faridabad, Haryana

Department of Computer Science & Applications

(Faculty of Informatics and Computing)

Scheme and Syllabus

B.Sc. Animation and Multimedia

(W.e.f. July – 2026)

(The Proposed Syllabus is approved in the 10th Meeting of BOS held on 09.06.26)

VISION

The Department of Computer Science and Applications aims to emerge as a center of excellence in computer science & applications by nurturing technically competent, innovative, and ethically responsible professionals who can design, develop, and apply computing solutions to address real-world challenges, contribute to research and entrepreneurship, and support sustainable societal and industrial growth in a rapidly evolving digital ecosystem.

MISSION

M1. To provide strong foundations in computer science and applications through a balanced curriculum that integrates theoretical knowledge, practical skills, and emerging computing technologies.

M2. To foster problem-solving, innovation, and research aptitude by encouraging project-based learning, interdisciplinary collaboration, and exposure to industry-relevant tools and practices.

M3. To develop professionally competent and ethically responsible graduates with effective communication, teamwork, and leadership skills to succeed in diverse computing roles and higher studies.

M4. To promote lifelong learning, entrepreneurship, and societal engagement by nurturing adaptability, sustainability awareness, and a commitment to continuous professional growth.

ABOUT THE PROGRAM

The Bachelor of Science (B.Sc.) in Animation and Multimedia is designed in accordance with the principles of the National Education Policy (NEP) 2020, emphasizing multidisciplinary education, creativity, innovation, experiential learning, skill development, and industry relevance. The programme aims to provide students with a strong foundation in animation, multimedia technologies, visual communication, digital design, storytelling, and emerging creative media while preparing them for successful careers in the rapidly evolving digital content and entertainment industries.

The curriculum is carefully structured to develop both artistic and technical competencies through a balanced combination of theoretical knowledge, practical training, laboratory-based learning, studio practices, industry-oriented projects, and experiential learning activities. The programme introduces students to the fundamentals of drawing, design principles, digital graphics, animation techniques, visual effects, multimedia production, motion graphics, video editing, web technologies, game design, user interface design, and interactive media.

The programme focuses on nurturing creativity, critical thinking, problem-solving abilities, visual storytelling skills, and technological proficiency. Students gain hands-on experience with industry-standard software, digital content creation tools, animation production pipelines, multimedia authoring systems, and emerging technologies that are shaping the future of creative industries.

Aligned with the objectives of NEP 2020, the programme offers flexibility through elective courses, multidisciplinary learning opportunities, skill enhancement modules, and value-added courses. Students are encouraged to explore diverse domains such as 2D Animation, 3D Animation, Visual Effects (VFX), Motion Graphics, Graphic Design, Digital Filmmaking, Game Art, Character Design, UI/UX Design, Web Design, Interactive Media, Virtual Reality (VR), Augmented Reality (AR), and Artificial Intelligence (AI)-enabled creative applications.

The curriculum places significant emphasis on experiential and project-based learning through workshops, design studios, production assignments, case studies, collaborative projects, portfolio development, internships, and industry interactions. Students participate in creative challenges, exhibitions, seminars, hackathons, media production activities, and community engagement initiatives that foster innovation and professional growth.

To ensure holistic development, the programme incorporates courses related to communication skills, environmental awareness, Indian Knowledge Systems, professional ethics, entrepreneurship, leadership, teamwork, innovation management, intellectual property rights, and lifelong learning. These components help students become responsible professionals capable of contributing positively to society and the creative economy.

The programme also promotes research orientation and encourages students to explore emerging trends and technologies in digital media, animation, gaming, immersive technologies, and interactive experiences. Through industry collaborations and practical exposure, students develop an understanding of professional workflows, production management, client communication, and creative project execution.

A dedicated internship and major project component enables students to apply their acquired knowledge and skills in real-world environments. This industry exposure bridges the gap between academic learning and professional practice while enhancing employability, technical expertise, and creative confidence.

The B.Sc. Animation and Multimedia programme develops graduates with strong artistic vision, technical competence, design thinking abilities, storytelling expertise, collaborative skills, entrepreneurial mindset, and ethical values. The programme prepares students for rewarding careers in Animation, Visual Effects (VFX), Motion Graphics, Graphic Design, Digital Content Creation, Multimedia Production, UI/UX Design, Game Art and Design, Web and Interactive Media, Advertising, Digital Marketing, Virtual Production, Creative Technology, Media Communication, Entrepreneurship, and other emerging sectors of the digital creative industry.

.

B.Sc. Animation and Multimedia

Semester-1

Sr. No	Category	Course code	Course Title	Course Requirements (hrs)		Sessional Marks/End Term Marks			Total Marks	Credits
				L	P	Total	Sessional	End Term Marks		
1.	Discipline Specific-Major	AMU-101-V1	Visual Arts	3	-	3	40	60	100	3
2.	Discipline Specific-Major	AMU-103-V1	Introduction to Film Making	4	-	4	40	60	100	4
3.	Discipline Specific-Minor	AMU-105-V1	Fundamentals of Information and Web Technology	3	-	3	40	60	100	3
4.	Multidisciplinary	OSU-123-V1	Mathematics	3	-	3	40	60	100	3
5.	Ability Enhancement courses	AEC-101-V1	Writing Skills and the Art of Rhetoric (WSAAR)	2	-	2	40	60	100	2
6.	Value Added Course	ESU-201-V1	Environmental Science -I	2	-	2	40	60	100	2
7.	Skill Enhancement Courses	AMU-107-V1	Graphics Design-I	-	6	6	25	25	50	3
8.	Discipline Specific Major Lab	AMU-109-V1	Visual Art Lab	-	2	2	25	25	50	1
9.	Discipline Specific-Minor Lab	AMU-111-V1	Fundamentals of Information and Web Technology Lab	-	2	2	25	25	50	1
			Total	**17**	**10**	**27**	**315**	**435**	**750**	**22**

SEMESTER -I

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER

CODE: AMU-101-V1

SUBJECT NAME: Visual Arts

No. of Credits: 3

L	**3**	**Sessional**	**40**
P	**0**	**Theory Exam**	**60**
		Total	**100**

Course objectives:

1. To understand the basic elements of visual Art and Design
2. To inculcate the basic principles of visual Art and Design.
3. To understand the colour theory and the psychological, culture and other association with colour.
4. To understand the shading techniques using light and shadow.
5. To develop a basic understanding of using shapes in object drawing and nature.

Unit-01

Drawing with Basic shapes: Object drawing from surroundings, study of plants and trees, Visualizing objects in various angles.

Unit-02

Elements of Art: - Line - Colour - Shape - Texture - Space – Form – Value.
Colour Theory: Primary & Secondary Colour, & Territory colour, warm & cool colour, psychological aspect of colour.

Unit-03

Principles of Art: Unity, Balance, Rhythm, Contrast, Dominance, Movement, and Pattern. Introduction to Light & shade: Pencil shading techniques- hatching, Cross hatching, stippling, scribbling and smudging.

Unit-04

Volume Construction, human and animal anatomy, Study of human part face, hands, foot, torso, nose, lips. Balance and perspective applied to figures, study dynamic poses of figures, figures in action and in movement.

Unit-05

Introduction to Perspective Drawing one point, two point and three point. (Introduction to Perspective - Different types of Perspective - Different types of Eye Levels), forshortening.

Course outcome:

A. Students would be able to create visual designs or artwork using visual art elements.
B. Students would be able to implement the acquired knowledge of the principles of design to create art composition.

C. Students would be able to implement the understanding of basic color theory to create an impactful composition to express or influence certain feelings or emotions through visual art.
D. Students would be able to draw light and shadow on objects with appropriate assessment and representation of the impact of light on simple forms and objects.
E. Students would be able to develop a basic understanding of using shapes in object drawing and nature study.

	Course Outcomes					
Course Objectives		**A**	**B**	**C**	**D**	**E**
	1	✓				
	2		✓			
	3			✓		
	4				✓	
	5	✓				✓

Text Books/ Reference Books:

1. Universal principles of design by William led well
2. Design element: A graphic style manual by Timothy Samara
3 .Geometry of design by Kimberly Elam
4. The principles of beautiful web design by Jason Beaird

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER
CODE: AMU-103-V1
SUBJECT NAME: Introduction to Film Making

No. of Credits: 4

L	**4**	**Sessional**	**40**
P	**0**	**Theory Exam**	**60**
		Total	**100**

Course objectives:

1. To study about different films and film makers.
2. To understand about different states of films like pre-production, production and post production and the basic concept of films.
3. To acquire the knowledge of different statements like statements like story, script and storyboard.
4. To create an idea with experimental animation.
5. To create an idea with experimental film.

Unit-01

Introduction to Films/Cinema, History of films, Types of films, process of filmmaking.

Unit-02

Various departments in films, Pre-production, Production, Post- Production, Film Language (Shot, Scene, Camera Movements).

Unit-03

Revisualization (Shot Division, Story Boarding) Project Designing & Planning Scheduling (Creating grid, arranging scenes, characters & crew needed, Budgeting.

Unit-04

Introduction - work of director Types of directors & duties of each Break downs, Introduction - Production designing Basic concept & techniques Dressing a Set & arranging property Location alternating.

Unit-05

Final Projects 1. Advertisement 2. Documentary 3. Short Films 4. Video Song 5. News Film Appreciation sessions - Screening of short, documentary& feature films for analysis.

Course outcome:

A. Students will be able know about history of films, film-makers.
B. Students will be able know about production pipeline: pre-production, production, post-production.
C. Students will be able know to Solve basic problems using different statements like story, script and storyboard.
D. Students will be able know to Apply script storyboard for experimental animation film.
E. Students will be able know create film, video and experimental films.

	Course Outcomes					
Course Objectives		A	B	C	D	E
	1	✓				
	2		✓			
	3			✓		
	4				✓	
	5	✓				✓

Text Books/ Reference Books:

1. The Filmmakers Handbook - By Stevevascher
2. Shot By Shot - By Steven Katz
3. Making Movies - By Sudney Lumet.
4. On Directing Film - By David Mamet
5. Rebel without a Crew - By Robert Rodriguez
6. The Television Handbook - Patricia Holland
7. Studio Television Production – By Andrew Utterback

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER
CODE: AMU-105-V1
SUBJECT NAME: Fundamentals of Information and Web Technology

No. of Credits: 3

L	**3**	**Sessional**	**40**
P	**0**	**Theory Exam**	**60**
		Total	**100**

Course objectives:

1. To understand the major components of computer system and to learn about different Number Systems and their conversion.
2. To learn about different programming languages and their corresponding Translators.
3. To learn about the basic concepts of Networking.
4. To understand the concept of Internet and WWW and also to design web pages using HTML.
5. To understand the types and functions of OS.

Unit-01

AN OVERVIEW OF COMPUTER SYSTEM AND OPERATING SYSTEMS
Fundamentals: Evolution of computers, Hardware organization of a computer. Introduction to micro processors. Input/output Devices, Input/output ports and connectors.

Unit-02

BASIC INTRODUCTION TO PROGRAMMING LANGUAGES: Machine
Language, Assembly Languages, High level Languages, Types of high level languages, Complier, Interpreter, Assembler, Loader, Linker, Relationship between Compiler, Loader and Linker.

Unit-03

BASIC INTRODUCTION TO COMPUTER NETWORKS: Data Communication,
Modulation, Network devices, LAN, LAN topologies, WAN, OSI Reference model Introduction to Internet and protocols: TCP/IP ref. model.

Unit-04

Internet and WWW: Hypertext Transfer Protocol (HTTP), URL, HTML: Internet Language, Understanding HTML, Create a Web Page, Linking to other Web Pages, Publishing HTML Pages, Text Alignment and Lists, Text Formatting Fonts Control, E-mail Links and link within a page, Creating HTML Forms.

Unit-05

Different Number Systems:- Decimal Number System, Binary Number System, Octal Number System, Hexadecimal Number System, and their inter- conversions. Operating System Basics: Introduction to Operating system, Functions of an Operating Systems, Classification of Operating Systems

Course outcome:

A. Students will be able to analyze computer system components in detail. Also understand the types of format in which data can be stored in computer system's memory.
B. Students will be able to implement different types of programming languages and how with the helpof translator's computer understand human language.
C. Students will be able to apply and use the concept of networking and the use of Internet and World Wide Web.
D. Students will be able to design web pages using HTML.
E. Students will be able to familiar with various types of OS and various functions of OS.

	Course Outcomes					
Course Objectives		A	B	C	D	E
	1	✓				
	2		✓			
	3			✓		
	4				✓	
	5	✓				✓

Text Books/ Reference Books:

1. Fundamental of Information Technology by A. Leon &M.Leon.
2. Fundamentals of Computers and Programming with C by A. K. Sharma Dhanpat Rai publications
3. Computer Networks (4th Edition) by Andrew S. Tanenbaum

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER
CODE: OSU-123-V1
SUBJECT NAME: Mathematics

No. of Credits: 3

L	**3**	**Sessional**	**40**
P	**0**	**Theory Exam**	**60**
		Total	**100**

Course objectives:

1. To understand the basics of 2d coordinates and geometry.
2. To understand the basics of 3d coordinates and geometry.
3. To understand the Three-Dimensional Concepts.
4. To understand the Matrices and Vectors.
5. To understand the different types of vectors.

Unit-01

2D Coordinate Geometry: Cartesian and Polar coordinate system, Distance, Formula, Equation of Line, Circle, Ellipse etc.

Unit-02

3D Coordinate Geometry: 3D coordinate System, Equation of Line, Circle, Ellipse and their attributes, Colour and Grayscale Levels, Area fill Attributes, Character Attributes, Bundled Attributes, Anti-aliasing. Basic of Transformations: translation, Scaling, Rotation etc.

Unit-03

Three-Dimensional Concepts: Three Dimensional Display Methods, 3D Transformations, Parallel Projection and Perspective Projection.

Unit-04

Matrices and Vectors: Matrix definition and storage. Basic operations on Matrices: Addition, Multiplication, Transpose etc. Vectors and scalars, magnitude and direction of a vector, Direction cosines and direction ratios of a vector.

Unit-05

Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scale.

Course outcome:

A. Students would be able to know basics of 2d coordinates and geometry
B. Students would be able to know the basics of 3d coordinates and geometry
C. Students would be able to implement Three-Dimensional Concepts.
D. Students would be able to know Matrices and Vectors.
E. Students would be able to know the different types of vectors

	Course Outcomes					
Course Objectives		A	B	C	D	E
	1	✓				
	2		✓			
	3			✓		
	4				✓	
	5	✓				✓

Text Books/ Reference Books:

1. Plastock:Theory&ProblemofComputerGraphics,SchaumSeries.
2. M.D.Raisinghania, VectorCalculus,S ChandCo.Pvt.Ltd.,2013.
3. BSpain,VectorAnalysis, ELBS,1994.

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER
CODE: AEC-101-V1
SUBJECT NAME: Writing Skills and the Art of Rhetoric (WSAAR)

No. of Credits: 2

L	**2**	**Sessional**	**40**
P	**0**	**Theory Exam**	**60**
		Total	**100**

Course objectives:

1. To provide with the confidence to use written communication in your work and personal experience beyond college,
2. To acquaint students with the concept of a writer-reader relationship and identify the need for active participation from both writer and reader,
3. To teach the skills needed to successfully communicate in a modern world through written materials.
4. To develop strategies for information design, to include producing visually enhanced documents.

Unit-01

Narration and Writing

Define, Describe, Narrate and Argue; Articulating Questions and Innovative Thoughts; Narration: chronological order and achronological order; first-person, second-person and third person point of view in narration; key elements: plot, character, pov, setting and conflict; Storytelling, event news stories and Corporate Storytelling; problem-solution structures.

Unit-02

Reasoning and Rhetoric: Rhetoric, the art of persuasion; *ethos, logos* and *pathos*, Aristotle's triangle; Freytag's pyramid; reasoning; organizing; articulating; Synthesis; *Antanagoge; Hypophora.*

Recognize and evaluate the strength of an argument and its impact.

Exercise: Rhetorical and Oratorical Skills: Techniques for effective public speaking, both prepared and extemporaneous; Brainstorm ideas for your own short speech.

Unit-03

Writing Features and Articles: Writing Features and Articles, , Op-Eds (Opinions and Editorials), Features; Articles; Topical Issues, Memes; Backgrounders; Memes; Idioms, Proverbs; Using Literary Devices and Figurative Language.

Exercises: Building Memes and Feature Writing

Unit-04

Performance and Drills

Reading Drills; Speaking Drills; Team-Performance Drills; Solo Performance Drills; Apply the elements of rhetoric you have learned so far in the final draft of your op-ed and discussion.

Course outcome:

A. Clearly convey specialized information from a technical field to a non-specialized audience.

B. Identify and use appropriate formats and conventions derived from individual disciplines.

C. Assess effectiveness and validity of information sources, such as web sites, business documents, and professional journals.

D. Develop strategies for information design, to include producing visually enhanced documents.

	Course Outcomes				
Course Objectives		A	B	C	D
	1	✓			
	2		✓		
	3			✓	
	4				✓

Text Books/References:

1. David F. Beer and David McMurrey, Guide to writing as an Engineer, John Willey. New York, 2004

2. Diane Hacker, Pocket Style Manual, Bedford Publication, New York, 2003. (ISBN 0312406843)

3. Shiv Khera, You Can Win, Macmillan Books, New York, 2003.

4. Raman Sharma, Technical Communications, Oxford Publication, London, 2004.

5. Dale Jungk, Applied Writing for Technicians, McGraw Hill, New York, 2004. (ISBN: 07828357-4)

6. Sharma, R. and Mohan, K. Business Correspondence and Report Writing, TMH New Delhi 2002.

7. Xebec, Presentation Book, TMH New Delhi, 2000. (ISBN

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER
CODE: E S U - 2 0 1 - 1
SUBJECT NAME: Environment Science-I

No. of Credits: 2

L	**2**	**Sessional**	**40**
P	**0**	**Theory Exam**	**60**
		Total	**100**

Course objectives:

At the completion of this course, the learner will be able to:

1: Understand human interaction with the environment and efforts taken for emergence of environmentalism at international level.

2: Understand concept of natural resources, their distribution, conservation, management and sustainable utilization.

3: Develop critical thinking towards local, regional and global environmental issue.

4: Describe the concept of ecosystem, biodiversity and their conservation at national and international levels.

Unit-01 Humans and the Environment

The man-environment interaction: Humans as hunter-gatherers; Mastery of fire; Origin of agriculture; Emergence of city-states; Great ancient civilizations and the environment, Indic Knowledge and Culture of sustainability; Middle Ages and Renaissance; Industrial revolution and its impact on the environment; Population growth and natural resource exploitation; Global environmental change. Environmental Ethics and emergence of environmentalism: Anthropocentric and eco-centric perspectives (Major thinkers); The Club of Rome- Limits to Growth; UN Conference on Human Environment 1972; World Commission on Environment and Development and the concept of sustainable development; Rio Summit and subsequent international efforts.

Unit-02 Natural Resources and Sustainable Development

Overview of natural resources: Definition of resource; Classification of natural resources- biotic and abiotic, renewable and non-renewable.

Biotic resources: Major type of biotic resources- forests, grasslands, wetlands, wildlife and aquatic (fresh water and marine); Microbes as a resource; Status and challenges.

Water resources: Types of water resources- fresh water and marine resources; Availability and use of water resources; Environmental impact of over-exploitation, issues and challenges; Water scarcity and stress; Conflicts over water.

Soil and mineral resources: Important minerals; Mineral exploitation; Environmental problems due to extraction of minerals and use; Soil as a resource and its degradation.

Energy resources: Sources of energy and their classification, renewable and non-renewable sources of energy; Conventional energy sources- coal, oil, natural gas, nuclear energy; non-conventional energy sources- solar, wind, tidal, hydro, wave, ocean thermal, geothermal, biomass, hydrogen and fuel cells; Implications of energy use on the environment.

Introduction to sustainable development: Sustainable Development Goals (SDGs)- targets and indicators, challenges and strategies for SDGs.

Unit-03 Environmental Issues: Local, Regional and Global

Environmental issues and scales: Concepts of micro-, meso-, synoptic and planetary scales; Temporal and spatial extents of local, regional, and global phenomena. Pollution: Impact of sectoral processes on Environment; Types of Pollution- air, noise, water, soil, thermal, radioactive; municipal solid waste, hazardous waste; transboundary air pollution; acid rain; smog.

Land use and Land cover change: land degradation, deforestation, desertification, urbanization.

Biodiversity loss: past and current trends, impact.

Global change: Ozone layer depletion; Climate change. Disasters – Natural and Man-made (Anthropogenic)

Unit-04 Conservation of Biodiversity and Ecosystems

Biodiversity and its distribution: Biodiversity as a natural resource; Levels and types; Biodiversity in India and the world; Biodiversity hotspots.

Ecosystems and ecosystem services: Major ecosystem types in India and their basic characteristics- forests, wetlands, grasslands, agriculture, coastal and marine; Ecosystem services- classification and significance.

Threats to biodiversity and ecosystems: Land use and land cover change; Commercial exploitation of species; Invasive species; Fire, disasters and climate change.

Major conservation policies: in-situ and ex-situ conservation; Major protected areas; Biosphere reserves; Ecologically Sensitive Areas; Coastal Regulation Zone; the role of traditional knowledge for biodiversity conservation, community-based conservation; Gender and conservation.

Overview of the following conventions and protocols- Convention on Biological Diversity (CBD); Cartagena Protocol on Biosafety; Nagoya Protocol on Access and Benefit-sharing; Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES); Ramsar Convention on Wetlands of International Importance; Ramsar sites; United Nations Convention to Combat Desertification (UNCCD).

Unit-05 Case studies/ Field Work

The students are expected to be engaged in some of the following or similar identified activities:

a) Field visits to identify local/regional environmental issues, make observations including data collection and prepare a brief report.

b) Discussion on one national and one international case study related to the environment and sustainable development.

c) Participation in plantation drive and nature camps.

d) Documentation of campus flora and fauna.

Text Book s/References:

1. Baskar, R & Baskar, S. (2010). Natural Disasters: Earth's Processes & Geological Hazards, Unicorn Books
2. Bawa, K.S., Oomen, M.A. and Primack, R. (2011) Conservation Biology: A Primer for South Asia. Universities Press.
3. Bhagwat, Shonil (Editor) (2018) Conservation and Development in India: Reimagining Wilderness, Earthscan Conservation and Development, Routledge.
4. Chiras, D. D and Reganold, J. P. (2010). Natural Resource Conservation: Management for a Sustainable Future.10th edition, Upper Saddle River, N. J. Benjamin/Cummins/Pearson.
5. De Anil, K. (2003). Environmental chemistry. New Age International.

6. Fisher, Michael H. (2018) An Environmental History of India- From Earliest Times to the Twenty-First Century, Cambridge University Press.
7. Gilbert M. Masters and W. P. (2008). An Introduction to Environmental Engineering and Science, Ela Publisher (Pearson)
8. Harper, Charles L. (2017) Environment and Society, Human Perspectives on Environmental Issues 6th Edition. Routledge.
9. Harris, Frances (2012) Global Environmental Issues, 2nd Edition. Wiley- Blackwell.
10. Headrick, Daniel R. (2020) Humans versus Nature- A Global Environmental History, Oxford University Press.
11. Hughes, J. Donald (2009) An Environmental History of the World- Humankind's Changing Role in the Community of Life, 2nd Edition. Routledge.
12. John W. Twidell and Anthony D. (2015). Renewable Energy Sources, 3rd Edition, Weir Publisher (ELBS)
13. Kaushik, A., & Kaushik, C. P. (2006). Perspectives in environmental studies. New Age International.
14. Krishnamurthy, K.V. (2003) Textbook of Biodiversity, Science Publishers, Plymouth, UK
15. Manahan, S.E. (2022). EnvironmentalChemistry (11th ed.). CRC Press. https://doi.org/10.1201/9781003096238
16. Perman, R., Ma, Y., McGilvray, J., and Common, M. (2003) Natural Resource and Environmental Economics. Pearson Education.
17. Rajagopalan, R. (2011). Environmental Studies: From Crisis to Cure. India: Oxford University Press.
18. Sharma, P. D., & Sharma, P. D. (2012). Ecology and environment. Rastogi Publications.
19. Simmons, I. G. (2008). Global Environmental History: 10,000 BC to AD 2000. Edinburgh University Press
20. Singh, J.S., Singh, S.P. & Gupta, S.R. 2006. Ecology, Environment and Resource Conservation. Anamaya Publications https://sdgs.un.org/goals
21. Sinha, N. (2020) Wild and Wilful. Harper Collins, India.
22. Varghese, Anita, Oommen, Meera Anna, Paul, Mridula Mary, Nath, Snehlata (Editors) (2022) Conservation through Sustainable Use: Lessons from India. Routledge.
23. William P. Cunningham and Mary A. (2015). Cunningham Environmental Science: A global concern, Publisher (Mc-Graw Hill, USA)

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER
CODE: AMU-107-V11
SUBJECT NAME: Graphics Design-I

No. of Credits: 3

L	**0**	**Internal Practical**	**25**
P	**6**	**External Practical**	**25**
		Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No.	**Group A**
1.	Create visual art with tools (Introduction to digital tools, power and limitations)
2.	Create Background with filters
3.	Create wallpaper filters and blending modes
4.	Create artwork with Layers (basic principles: pixel, vector, layers, resolution, color mode)
5.	Create 3D effects with Layer blending option Photo retouching
6.	Color editing / Color balance
7.	Black and white to colour convert.
8.	Masking, Create Text Styles and effect
	Mini-Projects/Case Study
9.	Create digital graphics portfolio.

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER
CODE: AMU-109-V1
SUBJECT NAME: Visual Art Lab

No. of Credits: 2

L	**0**	**Internal Practical**	**25**
P	**4**	**External Practical**	**25**
		Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No.	**Group A**
1.	Visual and creative development, Understanding line of action, Making of gestures drawing and study of action.
2.	Free hand drawing through different techniques, controlling on drawing, controlling on line
3.	Weight and balance in drawing, drawings with mannequins.
4.	Pose to pose sketching, rapid sketching and techniques.
5.	Drawing from live action and memory drawing.
6.	Object drawing and nature drawing.
7.	Perspective Drawing: Perspective as applied to objects and furniture.
8.	Perspective Drawing: Interior and exteriors of the buildings etc, Perspective Drawing and drawing from a Script.
	Mini-Projects/ Case Study
9.	Create a portfolio of series of quick studies of figure drawing. Pay close attention to forms and weight distribution of the figure. Look for gesture of overall movement of the body.

B.SC. (ANIMATION AND MULTIMEDIA) 1ST SEMESTER
CODE: AMU-111-V1
SUBJECT NAME: Fundamentals of Information and Web Technology Lab

No. of Credits: 2

L	**0**	**Internal Practical**	**25**
P	**4**	**External Practical**	**25**
		Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No.	**Group A**
1.	Introduction to computer, its peripherals, Maintenance of computers using antiviral programs, formatting computers, Handling of computer files and folders use of DOS command, directory & file name & path.
2.	Introduction to various packages and software's and Installation of software on Computer.
3.	Use of MS DOS commands including system commands, creation of batch files and Various editors. System booting, Formatting disk, back process, File making and protecting files, Directory, file name and path.
4.	Word Basics: Starting Word, Creating Documents, Parts of Word Window, Some 'Don'ts', Formatting Features, Menus, Commands, Toolbars and their Icons, Mail merge, Creating different sections in word file.
5.	Excel Basics :The interface, Auto-complete Formatting , Basic calculations, Charts and Pivot, Tables, Charts, Pivot tables, Conditionals and Lookup Tables, Conditional functions, IF functions, Lookup functions, Conditional Formatting and Lists , Conditional formatting, Sorting lists, Filtering lists, Drop-Down Lists and Dynamic Charts Drop-down lists, OFFSET function, Dynamic chart.
6.	Scanning, Saving and Printing of documents
7.	Power Point Basics: Introduction, Toolbars, Their Icons and Commands.
8.	Using design software's, paint brush, toolbar and various commands.
	Mini-Projects/ Case Study
9.	Create a power point presentation.