

**MATS UNIVERSITY**  
**BACHELOR OF COMPUTER SCIENCE (A&G)**  
**REGULATIONS**

### **Introduction**

The objective of program is to prepare talented artists for a successful career in the animation field. Students shall have the opportunity to experiment and research multimedia designing trends and issues within the society to produce an integrated suite of design solutions taking into account the aspects of culture, economics and social interaction. The academic and training rigor of syllabus prepares you for the intriguing challenges in Animation, Film, Television, VFX, Advertising, and Gaming Industry. Develop competencies in using industry standard software. This production-oriented approach to training prepares students for a successful animation career in the entertainment industry.

### **Program Objective**

/Program objective is to provide an innovative approaches, methods and techniques of amination of technology. Graduates develop competencies and skills needed for becoming an effective animator.

### **Program Outcome**

- Graduates apply laws of human body motion and anatomy in 2D or 3 D characters
- Graduates become able to produce animated movies, projects and small video.
- Student get ability to animation projects from its conceptual stage to the final production creation.

## **1. Scope and Content**

- 1.1 The regulations documented here are applicable to the B.Sc.(A&G) programme offered by the university.
- 1.2 The applicability of the Regulations must be understood in the context of the given Scheme of study and the Syllabus of the programme.
- 1.3 The Regulations given here are in addition to the rules and regulations notified at the time of the admission.
- 1.4 The authorities of University may modify, add, delete, expand or substantiate any part of the Regulations and syllabi, at any time.

## **2. Course Content**

The programme shall be for duration of six semesters, spread out in three years. Each semester of the programme shall consist of either all or some of the following components:

- 2.1 Core Subjects
- 2.2 AECC (AbilityEnhancenment Compulsory Course)
- 2.3 SEC( Skill Enhancenment Course)
- 2.4 DSE ( Discipline Specific Electives) /Choice Based
- 2.5 GE( Generic Electives)
- 2.6 Lab Course
- 2.7 Project Work/

### **2.1 Core Subjects**

Core subjects comprises of subjects that form an integral part of the programme. These subjects provide a strong ground in basic disciplines of study.

### **2.2 AECC (AbilityEnhancenment Compulsory Course)**

The students who have not done English up to class XII are to opt for Hindi Communication. They can opt Environment studies and other languages also .

### **2.3 SEC( Skill Enhancenment Course)**

This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students.

### **2.4 DSE ( Discipline Specific Electives) /Choice Based**

Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study)

## 2.5 GE( Generic Electives)

An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective. P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.

## 2.6 Lab Courses

These subjects are totally practical-based subjects. The learning of these subjects will be performed in laboratories/practical sites with equipments/resources. These subjects shall support the practical implementation of the core/core-bracket subjects. The processes of evaluation of their subjects will depend on the nature of that individual subject.

## 2.7 Project Work

The project work shall be done for a duration as specified by the Coordinator, in the area, related to the main subject of study or the specialization. The project work shall give the student an insight to the situations existing in the field/related/industries, etc.

### 3. Eligibility for Admission and Mode of Selection

**3.1** The minimum qualification required to be eligible for admission is a pass in the HSC or 10+2 examination of a Board of a State Government, or a course recognized as equivalent thereto by the University, desirably with the relevant or related subjects as one of the subjects of study.

**3.2** The method of selection for the course shall normally be by means of a Personal interview. However, the admission might also be by means of an entrance test.

### 4. Attendance and Examination

A student is eligible to appear for the term-end examinations, only if he/she has put in a minimum of 75% attendance in each subject individually.

### 5. Assessment and Examination

#### 5.1 Credits

Credit Points will be awarded for all the subjects. One credit is equivalent to ten classroom contact hours.

Each core subjects will carry either 4 or 2 credits, each core bracket subject will carry 4 credits and practical courses will carry either 4 or 2 credits depending on the number of hours of teaching and training.

#### 5.2 Pattern of Assessment

Assessment of student's performance will be based on two components i.e. Internal Assessment and Term-end Examination conducted at the end of each semester.

A four-credit subject will comprise of an Internal Assessment component of 30 marks and a Term-end Examination components of 70 marks.

A two-credit subject will comprise of an Internal Assessment component of 15 marks and a Term-end Examination components of 35 marks.

#### 5.3 Purpose of Internal Assessment

The Term-end Examination will be conducted as per the University regulations. Sessional tests, assignment, mid-term examination, etc. will be conducted in each subject during the course of each semester, for the.

#### 5.4 Assessment for Core Bracket Subjects

Depending on the participation and performance of students, the faculty of the Core Bracket subject will grade the student in terms of an eight-point scale as given below:

Marks Secured	Grade Point	Letter Grade
80 and above	10	Outstanding(O)
70 and above but below 80	9	Excellent (A+)
60 and above but below 70	8	Very Good (A)
55 and above but below 60	7	Good (B+)
50 and above but below 55	6	Above Average (B)
45 and above but below 50	5	Average (C)
40 and above but below 45	4	Pass(P)
Below 40	0	Fail (F)
	0	Absent (AB)

This assessment is purely based on internal assessment of the subject faculty/coordinator.

#### 5.5 Assessment of Project Work

**5.6** The project work will carry a total of 100 marks. Of this, 70% marks are for the external examination and 30% marks will be awarded for internal evaluation

#### Eligibility to Appear for the Term-End Exam

Students, who have put in a minimum of 75% attendance in each subject, shall be eligible to appear for the Term-end examination.

## **6. Eligibility for Pass**

- 6.1** A student shall be declared to have passed in a subject, if he/she secures at least 40% marks in the term-end examination and an aggregate of 40% including internal assessment.
- 6.2** When a student reappears for the failed subject(s), the internal assessment marks originally secured by him/her in the first appearance in the subject(s), if any, will be carried forward.
- 6.3** A student shall be declared to have passed in Core Bracket subject, if he/she secures at least a pass grade.
- 6.4** Promotion of the student to the next semester, is not automatic, but is dependent on certain other conditions.

## **7. Classification of Successful Students**

**7.1** On successful completion of the programme, the students will be classified as below:

Distinction	Those securing an aggregate marks of 75% and above in all the subjects;
First Class	Those securing an aggregate mark of less than 75%, but above 60% in all the subjects;
Second Class	Those securing an aggregate mark of less than 60%, but above 50% in all the subjects;
Pass	Those securing an aggregate mark of less than 50% in all the subjects;

### **7.2 Ranks**

Only students who have passed each of the semester examination at the first appearance, shall be eligible for award of Ranks. The first three ranks shall be notified.

## **8. Award of Qualification**

Students will be awarded the Bachelor Degree of B.Sc (A&G), upon fulfillment of the following criteria:

- a. Must have passed all the subjects of three semester with a minimum of 40% on each subject including Internal assessment and secured 45% in aggregate;
- b. Must have secured at least a pass grade in all the Core Bracket subjects.
- c. Must have secured a minimum of 45% marks in the project work (wherever applicable).
- d. Must have complied with all other assessment guidelines and criteria notified during the conduct of the programme.

## **9. Maximum period for the completion of the Programme**

The maximum period for the completion of the programme shall be five years from the date of joining the programme.

## **10. General Guidelines**

### **10.1 Academic Integrity and Ethics**

- a. A student who has committed an act of academic dishonesty will be deemed to have failed to meet a basic requirement of satisfactory academic performance. Thus, academic dishonesty is not only a basis for disciplinary action but also is relevant to the evaluation of student's level of performance and progress.
- b. Where there has been violation of the basic ethos and principles of academic integrity and ethics, the Director/Board of Examiners/Course coordinator may use their discretion in terms of disciplinary action to be taken.
- c. Academic dishonesty includes, but is not necessarily limited, to the following:
  - i. Cheating or knowingly assisting another student in committing an act of cheating;
  - ii. Unauthorized possession of examination materials, destruction or hiding of relevant materials;
  - iii. Act of plagiarism;
  - iv. Unauthorized changing of marks or marking on examination records.

### **10.2 Attendance**

- a. Students are required to attend and participate in all scheduled class sessions, guest lecturer, workshops, outbound learning programs and club/ forum activities of both academic and non-academic nature.
- b. Students may be dropped from the programs due to excessive and non-intimated absences.
- c. Students must notify the program coordinator in writing, the reasons for absence, if any, from class sessions, activities and assessment components.

- d. On notification of absences ( including anticipated absences) , the Director/ Programmer coordinator would determine whether the absences could be rectified or whether it is possible to satisfactorily complete the subject with the number of identified absences.

### 10.3 General

- The students are expected to spend a considerable amount of time in research, reading and practice.
- All students are expected to develop and maintain a positive profession attitude and approach throughout the Programme and in conduct of all other activities.
- Attendance alone is not sufficient. Students are expected to participate, to help the class learn and understand the topics under consideration.
- Food and drinks are not permitted in the classroom/ conference hall.
- All students are expected to dress as per stipulated dress code.

B.Sc. (Animation and Graphics Designing) - B.Sc.(A&G)						
SEMESTER -I						
Subject Code	Subject	Credit	L+T+P	Univ.	Int. Marks	Total Marks
		1 Cr= 1 hrs		Exam Marks		
<b>CORE COURSES</b>						
AG101	BASICS OF COMPUTER	4	3+1+0	70	30	100
AG 102	Color Theory and Preproduction concepts	4	3+1+0	70	30	100
AG 103	Flipbook Animation	4	3+1+0	70	30	100
<b>AECC (ABILITY ENHANCEMENT COMPULSORY COURSE)</b>						
AG 104	ENVIRONMENTAL STUDIES	2	1+1+0	35	15	50
<b>SEC( SKILL ENHANCMENT COURSE)</b>						
<b>DSE ( DISCIPLINE SPECIFIC ELECTIVES) /CHOICE BASED</b>						
<b>GE( GENERIC ELECTIVES)</b>						
<b>LAB COURSES</b>						
AG 105	BASICS OF COMPUTER LAB	2	0+0+2	35	15	50
AG 106	Flipbook Animation	2	0+0+2	35	15	50
AG 107	Color Theory and Preproduction concepts	2	0+0+2	35	15	50
		<b>20</b>		<b>350</b>	<b>150</b>	<b>500</b>

B.Sc. (Animation and Graphics Designing) - B.Sc.(A&G)						
SEMESTER -II						
Subject	Subject	Credit		Univ.		

Code		1 Cr= 1 hrs	L+T+P	Exam Marks	Int. Marks	Total Marks
<b>CORE COURSES</b>						
AG 201	Computer Animation Concepts	4	3+1+0	70	30	100
AG 202	Multimedia Technology	4	3+1+0	70	30	100
AG 203	Cinematography and film Production process	4	3+1+0	70	30	100
<b>AECC (ABILITY ENHANCEMENT COMPULSORY COURSE)</b>						
AG 204	Communicative English	2	1+1+0	35	15	50
<b>SEC( SKILL ENHANCMENT COURSE)</b>						
<b>DSE ( DISCIPLINE SPECIFIC ELECTIVES) /CHOICE BASED</b>						
<b>GE( GENERIC ELECTIVES)</b>						
<b>LAB COURSES</b>						
AG 205	Computer Animation Concepts LAB	2	0+0+2	35	15	50
AG 206	Cinematography and film Production process LAB	2	0+0+2	35	15	50
AG 207	Multimedia Technology LAB	2	0+0+2	35	15	50
		20		350	150	500

### B.Sc. (Animation and Graphics Designing) - B.Sc.(A&G)

#### SEMESTER -III

Subject Code	Subject	Credit	L+T+P	Univ.	Int. Marks	Total Marks
		1 Cr= 1 hrs		Exam Marks		
<b>CORE COURSES</b>						
AG 301	Photoshop, Coral Draw & Quark Xpress	4	3+1+0	70	30	100
AG 302	Audio & Video Composing and Editing Tools & Techniques	4	3+1+0	70	30	100
AG 303	Modeling & Texturing	4	3+1+0	70	30	100
<b>AECC (ABILITY ENHANCEMENT COMPULSORY COURSE)</b>						
<b>SEC( SKILL ENHANCMENT COURSE)</b>						
AG 304	Entrepreneurship	2	1+1+0	35	15	50
<b>DSE ( DISCIPLINE SPECIFIC ELECTIVES) /CHOICE BASED</b>						
<b>GE( GENERIC ELECTIVES)</b>						
<b>LAB COURSES</b>						
AG 305	Photoshop, Coral Draw & Quark Xpress LAB	2	0+0+2	35	15	50
AG 306	Modeling & Texturing LAB	2	0+0+2	35	15	50
AG 307	Audio & Video Composing and Editing Tools & Techniques LAB	2	0+0+2	35	15	50
		20		350	150	500

### B.Sc. (Animation and Graphics Designing) - B.Sc.(A&G)

<b>SEMESTER -IV</b>						
Subject Code	Subject	Credit	L+T+P	Univ.	Int. Marks	Total Marks
		1 Cr= 1 hrs		Exam Marks		
<b>CORE COURSES</b>						
AG 401	Gaming production	4	3+1+0	70	30	100
AG 402	Elective – I	4	3+1+0	70	30	100
AG 403	Adobe Illustrator	4	3+1+0	70	30	100
<b>AEC (ABILITY ENHANCEMENT COMPULSORY COURSE)</b>						
<b>SEC ( SKILL ENHANCMENT COURSE)</b>						
AG 404	Mini Project – I	2	1+1+0	35	15	50
<b>DSE ( DISCIPLINE SPECIFIC ELECTIVES) /CHOICE BASED</b>						
<b>GE( GENERIC ELECTIVES)</b>						
<b>LAB COURSES</b>						
AG 405	Gaming production LAB	2	0+0+2	35	15	50
AG 406	Adobe IllustratorLAB	2	0+0+2	35	15	50
AG 407	Elective – I	2	0+0+2	35	15	50
		<b>20</b>		<b>350</b>	<b>150</b>	<b>500</b>

**B.Sc. (Animation and Graphics Designing) - B.Sc.(A&G)**

<b>SEMESTER -V</b>						
Subject Code	Subject	Credit	L+T+P	Univ.	Int. Marks	Total Marks
		1 Cr= 1 hrs		Exam Marks		
<b>CORE COURSES</b>						
<b>AEC (ABILITY ENHANCEMENT COMPULSORY COURSE)</b>						
<b>SEC ( SKILL ENHANCMENT COURSE)</b>						
AG 501	ART LAB I	4	3+1+0	70	30	100
<b>DSE ( DISCIPLINE SPECIFIC ELECTIVES) /CHOICE BASED</b>						
AG 502	Elective - II	4	3+1+0	70	30	100
AG 503	Advanced 3DTexturing, & Musclesystems I LAB	4	3+1+0	70	30	100
<b>GE( GENERIC ELECTIVES)</b>						
<b>LAB COURSES</b>						
AG 504	Summer Training	4	0+0+4	70	30	100
AG 505	Advanced 3D Texturing, & Musclesystems - I LAB	2	0+0+2	35	15	50
AG 506	Elective II LAB	2	0+0+2	35	15	50
		<b>20</b>		<b>350</b>	<b>150</b>	<b>500</b>

**B.Sc. (Animation and Graphics Designing) - B.Sc.(A&G)**

<b>SEMESTER -VI</b>						
Subject		Credit		Univ.	Int.	Total

Code	Subject	1 Cr= 1 hrs	L+T+P	Exam Marks	Marks	Marks
<b>CORE COURSES</b>						
<b>AECC (ABILITY ENHANCEMENT COMPULSORY COURSE)</b>						
<b>SEC( SKILL ENHANCEMENT COURSE)</b>						
AG 601	Art Lab II PRINTMEDIA	4	3+1+0	70	30	100
<b>DSE ( DISCIPLINE SPECIFIC ELECTIVES) /CHOICE BASED</b>						
AG 602	ELECTIVE IIIAdvanced Modeling with –Z Brush	4	3+1+0	70	30	100
AG 603	Advanced 3D Texturing, & Musclesystems II LAB	4	3+1+0	70	30	100
<b>GE( GENERIC ELECTIVES)</b>						
<b>LAB COURSES</b>						
AG 604	Major Project	4	0+0+4	70	30	100
AG 605	Advanced 3D Texturing, &Muscle systems II LAB	2	0+0+2	35	15	50
AG 606	Elective III LAB	2	0+0+2	35	15	50
		<b>20</b>		<b>350</b>	<b>150</b>	<b>500</b>

**B.Sc.(A&GD)101**  
**Basics of Computer**

**Course Objective** – To teach basics and fundamentals of computers. Students become well versed in technology.

**Course Outcome** – Students learn how computers are working and what are the basic requirements of computer.

**MODULE I:**

Introduction to Computer, Block diagram of computer, Working of computer, Classification of computers, Classification based on computing resources. Introduction to Input Devices: Categorizing Input Hardware, Keyboard, Direct Entry – Card Readers, Scanning Devices – O.M.R., Character Readers, MICR, Smart Cards, Voice Input Devices, Pointing Devices – Mouse, Light Pen.

**Module-II**

Central Processing Unit : The Microprocessor, control unit, A.L.U., Registers, Buses, Main Memory, Main Memory (RAM) for microcomputers, Read Only Memory(ROM). Storage Devices : Storage Fundamentals, Primary and Secondary Storage, Data Storage and Retrieval Methods – Sequential, Direct & Indexed Sequential, Tape Storage and Retrieval Methods Tape storage Devices, characteristics and limitations, Direct access Storage and Microcomputers - Hard Disks, Disk Cartridges, Direct Access Storage Devices for large Computer systems, Mass storage systems and Optical Disks, CD ROM.

**MODULE -III**

Output Devices: Softcopy output devices, Video display devices, emissive and non-emissive display devices, Refresh Cathode-Ray Tubes, Raster-Scan, Random Scan Displays, working of Monochrome CRT, working of Color CRT, Refresh rate, flickering, concept of scan line, aperture gril l, shadow masking, working principle of LCD, LED & Plasma, Review of some high end graphics monitors and work stations. Video adapter cards, Role of Video adapter cards, Pixel, Frame Buffer, video buffering (VRAM), video processor, Evolution of Video adapter cards, Comparison of Video adapter cards.

**MODULE -IV**

Concept of sound, role of sound card, Speakers and woofers, Hard copy output devices: Printers -Impact printers non-impact printers, working of dot matrix, daisy wheel, inkjet, laser, thermal printers, Comparison of various printers in term of speed, print quality, etc. Plotters, different types of plotters, advantages and disadvantages of different types of plotters.

**MODULE -V**

System Software: System software Vs. Application Software, Types of System Software, Introduction and Types of Operating Systems programs, Booting Loader, BIOS, Utility Programs, File Maintenance, Language Processors, Assembler, Compiler & Interpreter. Application Software: Microcomputer Software, Interacting with the System, Trends in PC software, Types of Application Software, Difference between Program and Packages.

**Text Books:**

1. Fundamentals of Computers V. Rajaraman, Prentice-Hall India.
2. Computer Graphics Donald Hearn & M. Pauline Baker, 2nd Edition, Prentice-Hall India.
3. 'O' level - V. K. jain
4. Fundamentals of Computers - V. Rajaraman Prentice-Hall India



**B.Sc.(A&GD)102**  
**Colors theory and Preproduction concepts**

**Course Objective – Teach students the concept and application of color in Animation.**

**Course Outcome – Students learn how to select color and best impact of color in Animation.**

**MODULE -I**

Introduction to color Theory , Meaning of color, Definition of color, Concept of Colour wheel, Color Schema, Color Models, Aspects of Color, Terms Related to Color, General Distribution of Color, Psychological Implication of colors, Basics of Drawing (For animation & Graphics), Shapes of Geometry and types, Use of color in commercial/marketing use, Objectives for Students for art aspect.

**MODULE –II**

Art and Aesthetics: (Theory) An introduction to art and aesthetics, what is Art and Beauty?, A definition of aesthetics, Types of Art & aesthetics, Short Aesthetic Theory, Art and Aesthetic in Digital age, The aesthetics of nature, visual arts(Digital), Digital media , example of digital media art (implemented through practical)

**MODULE –III**

Elements of Art: Intro to basic Elements of arts, Composition in Art, Learning the Principles of Art, Learning to Draw the Line Flow, Straight, Spiral, Clockwise, Anti Clockwise, Contents of art (Texture, Space, Shape, Color, Tone/Value, Line), Vocabulary of art, Memory drawing, facial drawing, nature drawing, historical place drawing.

**MODULE -IV**

Principles of Design: Introduction to Principles of Design,(Contents of designs) Vocabulary, Review, Balance, Symmetrical, Asymmetrical, Radial balance, VERTICAL, Principles of Design in graphics(theory lab). Freehand drawing.

**MODULE -V**

Pre-Production: / Introduction to Visual Art, Perspective Study / Depth Study, Character Development / Basic Human Anatomy Study, Cartoons & Caricature Study, Learning the Body Language, Story Boarding, Pre-Production Description, Freehand drawing., Assessment Objectives, Forms of assessment.

**Text Book:**

1. Andrew Loomis, “Fun with a Pencil”.
2. Victor Perard, “Anatomy and Drawing”.
3. “The Art of the Storyboard: Storyboarding for Film, TV, and Animation.
4. “PHILOSOPHY OF THE ARTS” by Gordon Graham

**B.Sc.(A&GD)103**  
**FLIPBOOK ANIMATION**

**Course Objective – Teach students how to create movement in Animation using Manual methods.**

**Course Outcome – Students create new concept of movement in Animation.**

**Module-I**

The History of flipbook animation Experimental Animation, Flip Books, Cut-out animation (cardboard sets, houses, layouts designing), clay animation, stop motion shooting technique, animation set designing (table top), Clay character modeling, table-top model lighting Clay Modeling Clay Animation, Experimental Animation work with different media, Water Colors ,Poster Colors ,Water proof Colors, Oil pastel Colors, Pencil Colors, Charcoal ,Pen and Ink Using Dry brush.

**Module -II**

Experimental Animation and Principles of Movement, Understanding the meaning of movement and movement in Nature and what movement expresses, Awareness of how mood and feeling can be conveyed through movement and animate and inanimate object behavior, the laws of motion in the context of animation; animation; cause and effect thrown objects, rotating, force, oscillating movement, friction, resistance. Studying the tendency of weight to move in a particular manner.

### **Module -III**

Introduction to Animation Workflow, Principles of Animation, The Fundamental Principles of Animation, Timing, Ease In and Out (or Slow In and Out), Arcs, Anticipation, Exaggeration, Squash and Stretch, Secondary Action Follow Through and Overlapping Action, Straight Ahead Action and Pose-To-Pose Action, Staging Appeal, Personality, Animating force acting on objects, object weight, construction, flexibility, object behavior when force acts on them. Principles of Timing. Timing governing acting and movement. The use of anticipation, action, reaction.

### **Module -IV**

Tangents, Dope Sheet, Present and Future Work, Introduction to subject, theme, plot. Definition and explanation of story writing, Presentation of the plot for animation, Characterization, Case studies with successful writers (Animation Movie) Reference Sheets Computer Generated Animation Workflow

### **Module -V**

Digital Creativity, The high-tech role of computer animation, A guide to advanced computer animation techniques, Performance animation, inverse-kinematics, dynamic equations of motion, morphing technique, Facial animation, Cloth animation, task-level animation system, Passive dynamics, Active dynamics. Motion captures animation, motion capture animation technology, motion capture animation, software's. key frame animation.

## **B.Sc.(A&GD)104 Environmental Studies**

**Course Objective – To aware students about environment and how environment affect out daily life.**

**Course Outcome – Students know about environment, types of environment and Methods to save environment.**

**MODULE I:** Multidisciplinary nature of environmental studies, Definition, scope and importance Natural Resources: Renewable and non-renewable resources.

**MODULE II:** Environmental Pollution Definition: Cause, effects and control measure of - Air pollution, water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards.

**MODULE III:** Ecosystem: Structure and function of an ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.

**MODULE IV -**, Water conservation, global warming, acid rain, and ozone layer depletion,. Environment and human health, Women and Child Welfare. Role of Information Technology in Environment and human health

**MODULE V:** Biodiversity: - Definition, Types, and Value of biodiversity: Hot-spots of biodiversity. Threats to biodiversity: Conservation of biodiversity:

### **Reference Books:**

1. Agarwal K.C. 2001 Environmental Biology Nidi Publ. Ltd. Bikaner.
2. Bharucha Erach, the Biodiversity of India, Mapin Publishing Pvt. Ltd. Ahmedabad 380 013, India, Email: mapin@icenet.net(R)
3. Bruinner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p.
4. Clark R.S., Marine Pollution, Clanderson Press Oxford (TB).
5. Cuningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 200,
6. Dr A.K. Environmental Chemistry, Wiley Estern Ltd.
7. Down to Earth, Centre for Science and Environment (R)
8. Gloick, H.P. 1993 Water in crisis, Pacific Institute for studies in Deve, Environment & Security. Stockholm Eng. -Institute. Oxford Univ, Press. 473p.
9. Hawkins R.E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Mumbai (R).
10. Heywood, V.H. & Watson, RT. 1995 Global Biodiversity Assessment, Cabridge Univ. Press 1140p.

11. Jadhav H. &Bhosale, V.H. 1995, Environmental Protection and Laws. Himalaya Pub.House. Delhi 284p.
12. Mckinney M.L. & School RM. 1996, Environmental Science systems & Solutions, Web enhanced edition, 639p.
13. Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB).
14. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB).
15. Odum, E.P. 1971, Fundamentals of Ecology, W.B. Saunders Co. USA, 574p.
16. Rao M.N. &Datta, A.K. 1987, Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd.
17. Sharma B.K., 2001, Environmental Chemistry, Goel Publ. House, Meerut.
18. Survey of the Environment, TheHidu (M).
19. Townsend C., Harper J. and Michael Begon, Essentials of Ecology, Blackwell Science (TB).
20. Trivedi R.K. Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol.I and II, Environment Media (R).
21. Trivedi RK., and P.K. Goel, Introduction to air pollution, Techno-Science Publications (TB).
22. Wagner K.D., 1998, Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p. (M)Magazine (R)Reference (TB) Textbook.

### **B.Sc.(A&GD)105**

#### **OFFICE AUTOMATION CERTIFICATION**

**Course Objective – Teach students basics of office work in computer.**

**Course Outcome – Students learn to handle office work in computer.**

### **B.Sc.(A&GD)201**

#### **Computer Animation Concepts**

**Course Objective – Tech students how animation is created through computers.**

**Course Outcome – Students learn to create small animation in computer and settings of animated work in computer.**

#### **MODULE I:**

The History of Animation, Introduction to Animation Workflow, Principles of Animation, , The Fundamental Principles of Animation, Timing, Ease In and Out (or Slow In and Out),Arcs, Anticipation, Exaggeration,Squash and Stretch,Secondary ,ActionFollow Through and Overlapping Action,Straight Ahead Action and Pose-To-Pose Action,Staging Appeal,Personality, Animating force acting on objects , object weight, construction, flexibility, object behaviour when force acts on them. Principles of Timing. Timing governing acting and movement. The use of anticipation, action, reaction.

#### **MODULE II:**

Principles of Movement, Understanding the meaning of movement and movement in Nature and what movement expresses, Awareness of how mood and feeling can be conveyed through movement and animate and inanimate object behavior, the laws of motion in the context of animation; animation; cause and effect thrown objects, rotating, force, oscillating movement, friction, resistance. Studying the tendency of weight to move in a particular manner.

#### **MODULE III**

Experimental Animation, Flip Books, Cut-out animation (cardboard sets, houses, layouts designing), clay animation, stop motion shooting technique, animation set designing (table top), Clay character modeling, table-top model lighting Clay ModellingClay Animation, Experimental Animation work with different media, Water

Colours ,Poster Colours ,Water proof Colours, Oil pastel Colours,Pencil Colours,Charcoal ,Pen and InkUsing Dry brush.

#### **MODULE -IV**

Tangents, Dope Sheet, Present and Future Work, Introduction to subject, theme, plot. Definition and explanation of story writing, Presentation of the plot for animation, Characterization, Case studies with successful writers(Animation Movie) Reference Sheets Computer Generated Animation Workflow

#### **MODULE -V**

Digital Creativity, The high-tech role of computer animation, A guide to advanced computer animation techniques, Performance animation, inverse-kinematics, dynamic equations of motion, morphing technique, Facial animation, Cloth animation, task-level animation system, Passive dynamics, Active dynamics. motion capture animation, motion capture animation technology, motion capture animation, softwares. keyframe animation.

#### **Text Books:**

1. The Advanced Art of Stop-Motion Animation”Ken.A.Prieb”
2. The Animator’s Survival Kit” Richard Williams

## **B.Sc.(A & GD)202 Multimedia Technology**

**Course Objective – Teach students about fundamental of multimedia and their Settings.**

**Course Outcome – Students learn the concepts of multimedia.**

**MODULE I:** Introduction to Multimedia: types of Multimedia, Main Properties of Multimedia System: hardware and software requirements, Needs and areas of Applications, Identifying Multimedia elements – Text, Images, Sound, Animation and Video, Making simple multimedia with PowerPoint, Concepts of plain & formatted text, RTF & HTML texts, using common text preparation tools, Conversion to and from of various text formats, using standard software, Object Linking and Embedding concept, Basics of font design, overview of some fonts editing and designing tools, Understanding & using various text effects.

#### **MODULE II**

Importance of graphics in multimedia, Vector and Raster graphics, image capturing methods – scanner, digital camera etc., Various attribute of Images – size, color, depth etc., Basics of Image compression Techniques. Various Image file format – BMP, DIB, EPS, CIF, PEX, PIC, JPG, TGA, PNG and TIF format – their features and limitations, graphic file formats conversions, processing images with common software tools such as Photoshop, Paint Shop pro, Corel draw etc.

#### **MODULE III**

Sound and its Attributes, Mono V/s Stereo sound, Sound channels, Sound and its effect in multimedia, Analog V/s Digital sound, Basics of digital sounds - Sampling, Frequency, Sound Depth, Channels, Sound on PC, Introduction to Sound Card, Sound standards on PC, Capturing and Editing sound on PC, Overview and using some sound recording, editing software. Audio formats Music: MIDI Basic Concepts, Overview of various sound file formats on PC – WAV, MP3, MP4, Ogg-Verbose etc.

#### **MODULE IV**

Basics of Video – Analog and Digital Video, How to use video on PC. Introduction to graphics accelerator cards, DirectX Digitization of analog video to digital video, Interlacing and non-interlacing, Brief note on various video standards – NTSC, PAL, SECAM, HDTV, Introduction to video capturing Media & instrument – Videodisk, DVCAM, Camcorder, Introduction to digital video compression techniques and various file formats – AVI, MPEG, MOV Real Video, Brief Introduction to video editing and movie making tools – Quick Time, Video for Windows & Adobe Premier

#### **MODULE V**

Introduction to Authoring tools for CD Based Multimedia. Type of multimedia authoring tools, key factors of selecting CD based multimedia authoring tools, Planning and distribution of a multimedia project. Multimedia

development team & skills requirement, Stages in designing & producing multimedia products for CD, Testing of product, distribution of multimedia product, various formats of CD's and DVD's

**Text Books:**

1. Action Script for Flash MX: The Definitive Guide, Second Edition, By Colin Moock Second Edition December 2002
2. Multimedia System Design - by K. Andleigh, K. Thakkar (PHI Pub. ) Publications.

**Reference Books:**

1. Multimedia: Computing, Communications & Applications by Ralf Steinmetz and Klara Nahrstedt
2. Advanced Multimedia Programming by Steve Rimmer (McGraw Hill)
3. Fundamentals of MULTIMEDIA – ZE-NIAN LI and MARK S. DREW php pub.

**B.Sc.(A&GD)203**  
**Cinematography and film production process**

**Course Objective – Teach students about fundamentals of cinema and how to make short cinema**

**Course Outcome – Students learn about history of cinema and making of cinema**

**MODULE I:** History of Cinematography ,Film technique, Effects, cinematic story-telling, The cinematographer, director , camera operator, film stocks, Image sensor and film stock, Filters, Lens, History of Digital Cinematography, Technology, Sensors, Chroma sub sampling, motion pictures ,digital images , video tape, digital movie camera, video camera, Digital Theatrical Distribution, Digital cinematography cameras, Resolutions.

**MODULE II-** Camera angles 5’Cs of Cinematography, introduction, types of camera angle, objective, subjective, point of view, subject size, subject angle & camera height, extreme long shot, long shot, medium shot ( MS or MED ),close up(CU), inserts, descriptive shot, viewpoint, how to select area and viewpoint, change camera angle, lens, or both, scene, scene requirements, aesthetic factors, technical factors, psychological factors, dramatic factors, editorial factors, natural factors, physical factors, problem camera angles, conclusion.

**MODULE III-** Continuity, space continuity, time continuity, filming the action, types of action, filming techniques, master scene, master scene technique, using master scene technique, advantages and disadvantages of filming master scenes, triple take technique, advantages and disadvantages of triple-take technique, master scene vs .triple-take technique, directional continuity, importance of establishing direction, screen direction, close-up for switching screen direction, reversing screen direction, map direction, location interiors, planned screen travel, static screen direction, matching the look, look on both sides of lens, transitional devices , pictorial transitions, fades, dissolves, wipes, conclusion.

**MODULE IV-** Introduction, what is production design?, a brief historical perspective on production design in motion pictures, visualization of a screenplay, the trinity, writing for the screen, writing the screenplay with design in mind, production design as a narrative tool, the vision thing, a production designer’s credo, communication, breaking down the screenplay, set decoration, props, special effects, finding the look of a film, exercises to develop visualization skills.

**MODULE V-** The Psychological Nature of Production Design, Atmospheric Qualities of Production Design, Translating the Narrative into Visual Ideas, Interpreting the Characters Visually, Establishing an Environment for Cinematic Storytelling, Visualization Exercises, research, Design Files, Paintings, Photographs, Magazines, Literature, Video, Oral History, The Internet, Clearance and Permissions, Product Placement, Guidelines for Conducting Research.

**TextBooks/References**

- "Five C's of Cinematography - Motion Picture Filming Techniques", *Joseph v. Mascelli*
- "Filmmaker’s Guide Production Design", Vincent Lo Brutto

**Communicative English**

**Course Objective – Help students to develop personality and have effective communication skill.**

**Course Outcome – Students know how to get good personality to get placement.**

**MODULE I:**

- What is Communication (An introduction)
- The Communication Process (communication cycle)
- Objectives of communication (types)
- Media of communication (oral, written, audio, audiovisual, face to face)
- Types of communication (Downward, upward, horizontal, grapevine, consensus)
- Principles of communication
- Barriers of communication

**MODULE II :**

- Body language (facial expressions, gestures)
- Listening and its advantage
- Written presentation of technical material
- Punctuation & use of capital letters(practical exercises)

**MODULE III :**

- Abstract preparation
- Précis writing
- Agenda of meeting(definition, draft for a given occasion)
- Minutes of meeting (jotting down, minutes book)
- Tools of internal communication – ( memo, circular, notes, orders)
- Basic structure of letter(an introduction to different formats)

**MODULEIV :**

- Requisition letters
- Quotations
- Acknowledgements
- Applications
- Project proposal
- (Basics for different type of letters to be given with practice)

**MODULE V :**

- Interview skills
- Project Reports
- Resume writing
- Report writing
- Feature write-ups

(Basics for different type of letters to be given with practice)

Note:- The above tasks would be carried out through certain exercises, to name a few- movie screening, dissertation on a selected novel, presentations and public speaking.

Also, the following practices would be observed:

1. A set of exercises in both oral and written communication.
2. Self- managed reading/ writing.
3. Audio and video presentations.
4. Use of print media for explanation of certain topics.

**REFERENCE BOOKS**

1. Business Communication – K.K.Sinha.
2. Effective Business communication – Herta.A.Murphy,HERBER.W.
3. Effective Business Communication – AshaKaul.

4. Business Correspondence and report writing – R.C. Sharma and Krishna Menon.
5. Communication Skills – Rajendra Pal, J.S.Korlahalli.
6. Letters for all occasions – S.K.Puri.
7. Business Communication – UrmilaRai, S.M. Rai.
8. Business Communication – M.S.Ramesh, C.C.Pattanshetti.
9. Essential Communication Skills – Shirley Taylor.
10. Essentials of Business Communication – Rajendra Pal and J.S.Korlahalli.

### **Recommended talks -**

The following Debate and Talk shows are also recommended to improve communication skills

- The Cross Fire
- The Big Question
- Hard Talk on BBC World

The following **movies** are recommended to understand the cross-cultural communication

- East is East
- Hyderabad Blues
- Bend it like Beckham

### **Internal Evaluation Pattern and Type of Test**

**Course Objective – Test student's knowledge**

**Course Outcome – Weighted of students is judge.**

**MODULE I:** As per the need of the course structure, it is necessary to conduct both written and oral tests. Oral test: Listening and grammar tests would be taken with the help of audio and audio-visual aids (comprising of 10 marks)

Written test: Test on the MODULE, framed on topics covered and exercises on the topics (would be a blend both of objective and subjective questions, comprising of 10 marks).

**MODULE II:** As per the need of course structure, it is necessary to conduct both written and oral tests. Assignment: On topics covered (comprising of 10 marks).

Written test: Test on the MODULE, (framed on the topics covered and exercises on the topics would be a blend both of objective and subjective questions, comprising of 10 marks)

**MODULE III:** Oral test: On use of phonetic symbols and use of dictionary for correct pronunciation (comprising of 10 marks) Written test: Test on the MODULE, (framed on the topics covered. Exercises on the topics, would be a blend both of objective and subjective questions, comprising of 10 marks).

**MODULE IV:** Oral test: On use of phonetic symbols and use of dictionary for correct pronunciation (comprising of 10 marks) Written test: Test on MODULE, framed on the topics covered. Exercises on the topics, would be a blend both of objective and subjective questions, comprising of 10 marks).

**MODULE V:** Presentations: On various topics given (comprising of 10 marks).

Written test: Test on MODULE (framed on topics covered. Exercises on the topics, would be a blend both of objective and subjective questions, comprising of 10 marks).

### **TEXT BOOK:**

1. Compiled Version of Functional English to be used as work and text book By – AnjanaRohatgi & Shilpi Bhattacharya

### **REFERENCE BOOKS:**

1. English Grammar & Composition by- Wren & Martin



2. A Practical English Grammar by- A.J. Thompson & A. V. Martinet
3. Intermediate grammar usage & Composition by- M. L. Tickoo, A. E. Subramaniam, & P. R. Subramaniam

### **Literature Review**

1. A Love Affair in London - Khushwant Singh
2. On Being Remembered - A. G. Gardiner
3. On the Rule of Road - A. G. Gardiner
4. Shall I compare Thee to a Summers Day - Shakespeare
5. Orientation (Wings of Fire) - Arun Tiwari
6. Mr. Collins proposes to Elizabeth - Pride & Prejudice (Jane Austen)
7. Ode to Nightingale - Keats

**Note:** Literature pieces can be changed frequently in order to maintain students' interest in the subject.

## **B.Sc.(A&GD)301 Photoshop, Coral Draw& Quark Xpress**

**Course Objective – Teach tools of animations to students.**

**Course Outcome – Students are able to run basic tools of animation.**

**MODULE I:** –Introduction to adobe Photoshop, Getting to Know the Work Area, Photoshop's Tools description, Working with Selections, Basic Photo Corrections, Layer Basics, Correcting and Enhancing Digital Photographs, Masks and Channels, Typographic Design, Vector Drawing Techniques, Preparing Files for the Web, Custom Brushes, Basic Photo Corrections, Rotating, Scaling, and Distorting with Transformations, Feathering and Info Palette, Understand Resolution Touch up Tools, Layer effects, Digital Raw Photo Processing, PDF Presentation Output.

**MODULE II- Photoshop advanced** Working with 3D Images, 3-D and View Tools, Advanced Compositing, Painting.

**MODULE III-** Introduction to coral DRAW graphics, Features of Corel Draw, Corel Draw Interface, Tool Box, Common Tasks, Drawing and Coloring Introduction, Selecting Objects, Creating Basic Shapes, Reshaping Objects, Organizing objects Applying color fills and Outlines, working with Text, Introduction Text Tool, Artistic and paragraph text, Formatting Text, Embedding Objects into text, Wrapping Text around Object, and Linking Text to Objects.

**MODULE IV-** Working with Bitmap Commands, Introduction, Working with Bitmaps, Editing Bitmaps Applying effects on Bitmaps, Printing technology, Corel Draw- Web resources Introduction Internet Tool bar, Setting your webpage, Exporting files, Creating buttons with rollover effects. Special effects: Introduction Corel PHOTO-PAINT X7 introduces new camera effects, such as Bokeh blur, Colorize, Sepia Toning, and Time Machine.

**MODULE V-**Introduction to QuarkXPress user interface, QuarkXPress menus and dialog boxes, keyboard commands and palettes, File menu, Edit menu, Style menu, Item menu Page menu, Layout menu, Table menu, View menu, Utilities menu, Window menu. Palettes, Palette groups and palette sets, Layout controls, Views and view sets, Working with projects, Working with layouts, Working

with guides, Understanding Bézier shapes, Working with boxes, Working with lines, Manipulating items, callouts, tables, Text and typography, Working with pictures, Creating special effects with clipping paths

**Reference Books:**

1. Adobe Photoshop Lightroom Book for Digital Photographers .
2. Adobe Photoshop Lightroom Classroom in a Book

**B.Sc.(A&GD)302  
Audio & Video Composing and Editing Tools & Techniques**

**Course Objective – Teach students how to handle editing tools of animation**

**Course Outcome – Students are able to handle Audio and Video editing tools**

**MODULE I** Introduction to Audio Tools & Techniques, Fundamentals of Digital audio For Film/Video/Digital Media Sound & Audio, The Basic Characteristics of Sound, Audio Recording Techniques, Audio Editing, Using SFX (Sound Effects), Audio Mixing Mono, Stereo, 5.1, Using Audio Filters, Mastering Technique for TV/Film/Radio/ Other Digital Media platforms.

**MODULE II** Introduction to Digital Video, Digital Video Understanding the Benefits, Characteristics of Video Streams, Film making Fundamentals, Video Editing Tools, audio & video format extensions, Video Principles, Sampling – Rate Conversion, Video Editing Grammar

**MODULE III** Digital Video Compression Method, Making Pipeline, 3D Projection, Types of 3D glasses, Keying, Masking, Using Video Transitions, Motion Graphics, types of Recording Media, Disk in Digital Video, Type of Disk, Non-Liner Video Editing Tools & Shortcut.

**MODULE IV** Multi Camera video production & post production, Mixing Video Clips & Audio Tracks, Video Dialogue Editing, Adjustment Layers & Nesting, Compositing & masking, Green Screen Techniques, basic Timeline Editing, keyboard Shortcuts, Creating Credits & Title, Warp Stabilizer, Project Manager, Syncing Audio & Video, Type of Cuts & Transitions.

**MODULE V** Visual Effects and Compositing, understands compositing, Work with Multiple Comps and Projects, multiple-composition pipeline organized, shortcuts to help maintain orientation within the project as a whole, Precomping and Composition Nesting, The Project Panel, Create folders, Create a unique Final Output comp video.

**Text & Reference Books:**

1. An Introduction to Digital Video” John Watkinson Multimedia System Design - by K. Andleigh, K. Thakkar (PHI Pub.)

**B.Sc.(A&GD)303  
Modeling & Texturing**

**Course Objective – Teach 3D concept to students in creation of animation.**

**Course Outcome – Students learn to create 3D characters in animation and their Various effects.**

**MODULE I:** Introduction and Advancement of 3D, Getting in Control of 3D Space, Introduction of 3D Basics, Learning the Interface and Basic Tools , Objects, NURBS modeling overview,

Components of NURBS curves, Draw curves, Degree of NURBS curves and surfaces, Parameterization of NURBS curves and surfaces, Periodic, closed, and open geometry, Surface, NURBS Product Model, Nurbs Architectural Model, Nurbs Landscape, NURBS Simple Character.

**MODULE II-** Working with Polygon geometric polygonal sculpting, Surfaces, Menu Select Mesh, Poly modeling – Basic Session on Anatomy Human Animal Insect Bird Character 3d male anatomy, head, Ear, Torso, Hand, Legs, Clothing, Character 3d female anatomy, Model the Basic Body structures of Male and Female. Modeling Basic Blocking Structure of Animal, Horse, Camel, Elephant, Deer, Modeling the Insect Structure

**MODULE III-** Modeling the Basic Structure of Background, Buildings, Landscape, Terrains, 3D, Environment Design Set Design. Game Environment

**MODULE IV-** Mechanical Objects Modeling, Guns | Robots | Toy Cars | Multi Functional Machines.

**MODULE V-** Learning Basics of Light, Shade, Texture, Theory, Basic Shaders, Exer : Plastic, Ceramic, Wood Rough, Wood Polished, Paint, Shading Map, Surface Shading, Use Background, Bitmap & Procedural Maps & Basic UVW Mapping, Bitmap, 2D Maps, 3D Maps, Furniture, Room/Hall, Packaging Cover, Working with Shader, Properties & UVW Mapping-II, Transparency, Ambient, Incandescence, Bump Mapping, Diffuse, Create Composition Using Textures & Advanced UVW Mapping, Layer Shader, Dirty Surfaces Wall/Ground/Floor, Working with Special Maps, Fluid Texture 2D & 3D, Working with Utilities-I, Advanced Metals, Steel, Silver, Gold, Chrome, x: Utensils, Gadgets, Metal Accessories, Working with Utilities-II, Ex: Glass Shader, Colored Glass Bottles, Working with Utilities-III, Ex: Complex Shaders with Color correction.

#### **Text & Reference Books:**

1. Maya Help: link <http://help.autodesk.com/view/MAYAUL/2015/ENU/knowledge.autodesk.com/Maya/maya-documentation-html.html>
2. Introducing Autodesk Maya 2015: Autodesk Official Press PDF/EPUB  
by :Dariush Derakhshani Publication Date: June 3, 2014 | ISBN-10: 1118862848 | ISBN-13: 978-1118862841 | Edition: 1

### **B.Sc.(A&GD)304 Entrepreneurship**

**Course Objective** – Teach students how to open their own business.

**Course Outcome** – Students learn the basic concept to become an entrepreneur,

**MODULE I:** Introduction- Entrepreneur-entrepreneurship-and-enterprise: conceptual issues. Entrepreneurship versus Management. Entrepreneurship versus Intrapreneurship. Qualities of an entrepreneur: Role of entrepreneurship in economic development. Role and functions of entrepreneur in relation to new venture creation, especially in the developing country context. Small business as the seedbed of entrepreneurship – contemporary discourse on small and medium enterprises.

**MODULE II:** Theories of entrepreneurial Emergence: Economic, Sociological and Psychological Perspectives. Entrepreneurial competencies motivations, performance and rewards: The concept,

metrics and role in entrepreneurial manifestation and sustenance entrepreneurship as a creative and dynamic process. Innovation and entrepreneurial orientation in a developing economy.

**MODULE III:** Global Entrepreneurship monitor (GEM) Project and total Entrepreneurship Index (TEI). India's rank and the issues facing Indian Entrepreneurship. Prominent business families and communities. Issues involved in family business, especially those pertaining to accessing support for one's business ideas, assuming and asserting one's role in family business, and, leadership succession. The contemporary role models in Indian business: their values. Business philosophy and behavioural orientations.

**MODULE IV:** Entrepreneurial Development Programmers: their role, relevance and achievements; Role of Government in Organizing EDPs; Critical Evaluation; Problems and Constraints.

**MODULE V:** Reach of the various promotional programmers, evaluation of their effectiveness and the ways and mean of accessing the available help. Role of industries/entrepreneur's associations and self-help groups. The idea of business and sources of business ideas. Opportunity sensing via personal observation, vicarious experience, primary surveys and secondary data analysis. Role of business consultants/ mentors, entrepreneurship trainers, and, family-and community networks in identifying business opportunities. Compatibility of the business idea with the personal profile of the entrepreneur. Tools and techniques of Economy- sector- Industry analysis and projections.

### **Text/Reference Books:**

- Harell (1995), 'For Entrepreneurs Only', New Jersey Career pub.
  - Vikram Sarabhai, (1974), 'Management for development' Vikas pub.
  - Rajagopal, Entrepreneurship and Rural Markets
  - Ovmerod A, (1992), 'Textile, Project Management', the textile Institute.
  - Rerry and Franklin, (2002), 'Principals of Management'. AITBS.
- Acharya B.K and Gonekan P.B. (1985) " Marketing and sale Management", Bombay, Himalaya publication house

### **B.Sc.(A&GD)401 Gaming Production**

**Course Objective – Teach students how to develop game programs using Animations.**

**Course Outcome – Students can develop small game programs in animations.**

**MODULE I:** Introduction to game development, first plan, game development software, military and sports simulations, role-playing games, youth making games

**MODULE II-** The Game Project Survival Test, Game Requirements, Planning, Project Control, Risk Management, Game Production Parts, Design Parts, Level and Mission Designers, Story and Dialogue Writers Coding Parts, Lead Programmers and Technical Directors,

**MODULE III-** Game Mechanics Programmer, 3D Graphics Programmer, Artificial Intelligence Programmer, User Interface Programmer, Audio Programmer, Tools Programmer , Mission/Level Editor Programmer, Network, Server, or Client Programmer,

**MODULE IV-** Art Parts, Art Director, Concept Artist, 2D Artist/Interface Designer, 3D Modeler, Character Modeler, Texture Artist, Animator/Motion Capture Studio, Storyboarder. Audio Parts, Voice-Overs, Sound Effects, Music

**MODULE V-** Game design document, defining the game, articulate game possibility, core gameplay, core player activity, the controller diagram, contextual gameplay, character backgrounds, level, mission, and area design, cut scene descriptions, cover your assets, 2d sprites or 3d models, voice, key framing and motion capture, sound effects, music, special effects, The Art of War and Games, gambling games, puzzle, and parlor games,

**TEXT & REFERENCE BOOKS:**

1. The game artist guide to MAYA-Michael Mckinley.
2. The game animator guide to MAYA- Michael Mckinley

**B.Sc.(A&GD)402  
Adobe Illustrator**

**Course Objective – Teach students to use adobe tool for text management.**

**Course Outcome – Students can handle Adobe tool for text management in Animation.**

**MODULE I:** Introduction to adobe illustrator vector graphics, Workspace overview, Hide or show all panels, Customizing the workspace Tools panel Tools panel overview, View hidden tools, View tool options, Move the Tools panel, View the Tools panel in double-stack or single-column, Hide the Tools panel, Select a tool, Change tool pointers, Tool galleries, Selection tool gallery, Drawing tool gallery, Type tool gallery, Painting tool gallery, Reshaping tool gallery, Symbolism tool gallery, Graph tool gallery, Moving and zooming tool gallery.(make the assignments )

**MODULE II-** User interface color and brightness, Panels, Slicing and cutting tool gallery, Artboard overview, Viewing artboards and the canvas, Printing and saving artboards, Files and templates, Create new documents, About templates, Rulers, grids, guides, and crop marks, Use rulers, Change the unit of measurement, Use the grid, Use guides, Smart Guides, Measure the distance between objects, Using multiple artboards Artboard options, Viewing artwork, Specify Document Setup options, About print tiling, Zoom in or out.(Related assignments)

**MODULE III-** Drawing basics, vector graphics, paths, direction lines and direction points, Specify direction line and direction point appearance, Specify anchor point size preferences, Drawing modes, Draw Behind mode, Draw Inside mode, Drawing simple lines and shapes, Draw straight lines with the Line Segment tool, Draw rectangles and squares, Specify the corner radius of a rounded rectangle, Draw ellipses, Draw polygons, Draw stars, Draw arcs, Draw spirals, Draw grids, Draw rectangular grids, Draw circular (polar) grids, Drawing pixel-aligned paths for web workflows, Aligning new objects to pixel grid, Editing paths, Select paths, segments, and anchor points. Adding and deleting anchor points.

**MODULE IV-** Symbolism tools and symbol sets, About symbol sets, Create symbol sets, To the top Modify symbol instances in a symbol set, Apply a graphic style to symbol instances, Symbolism tool options, Symbols, About symbols, Symbols panel overview, Change the display of symbols in the panel, Place or create a symbol, Add sublayers for symbols, Work with symbol instances, Modify a symbol instance, Expand a symbol instance, Duplicate a symbol instance on the artboard ,Edit or redefine a symbol, Symbol libraries.

**MODULE V-** colors in digital graphics, RGB, CMYK, HSB, and Lab color models Grayscale Color spaces and gamuts , spot and process colors, Comparing colors in InDesign and Illustrator, Painting, Painting with fills and strokes, Painting methods, Apply a fill color to an object, About fills and strokes, Fill and Stroke controls, Blob Brush tool guidelines, Blob Brush tool options, Convert strokes to compound paths Brushes, About brushes, Brushes panel overview, Work with brush libraries, Copy brushes from a brush library to the Brushes panel, Apply brush strokes, Paintbrush tool options, Convert brush strokes to outlines, Create a brush, Modify a brush, Brush options, and Calligraphic brush options, Importing artwork files.

**Reference Books:**

1. Adobe official Book

**B.Sc.(A&GD)403**  
**Elective I**  
**Digital Film Making**

**Course Objective – Teach students how to develop film in digital way.**

**Course Outcome – Students can develop and edit film digitally.**

**MODULE I:** Introduction to digital film making, Analyze filmmaking as an art form, Analyze films for themes, concepts, plots, characters, and mise en scene., Cover genres such as: drama, comedy, romantic comedy, sci-fi, horror, documentaries, ect... The concept of documentary filmmaking.

**MODULE - II: Creative Writing,** Documentary Script Writing, Screen writing, structure and styles. Read screenplays. Work on synopsis and treatment. Discuss adaptations and original screenplays. Write synopsis, treatment and short 10-minute screenplay.

**MODULE - III:** What is directing, what makes a good director, the director's job. Working with actors. Directing two actors in a two-minute scene. Editing to music, titles. Art direction /production the visual language of film. Discuss films with strong art direction.

**MODULE - IV:** Cinematography and photography, Camera quiz, Video terms, Shot list, continuity, angling the camera, point of view, camera techniques, lighting, framing the shot, the elements of composition, video camera basics and Advanced techniques. A mystery with special effects (green screen).

**MODULE – V:** Editing- introduction to I movie, the advanced concepts of editing. Making a short or Documentary film.

**Reference Book:**

- The Digital Filmmaking : by Ben Long (Author), Sonja Schenk
- The Digital Filmmaking Handbook: The definitive guide to digital filmmaking: by **Chris Jones** (Foreword), **Mark Brindle** (Author)

**Elective I**

**Digital Sculpturing**

**Course Objective – Teach Maya software for sculpturing in animaton.**

**Course Outcome – Students will be able to sculpture their creation digitally.**

**MODULE I:** Introduction to digital sculpturing, introduction to Mudbox interface overview, Customize interface, sculpt using templates, sculpt or paint a tiling plane, select and move items, create basic UVs, Curves , **Create a mesh from curves.**

**MODULE - II:** Data exchange, Model file formats, Model file formats, Export paint layers, Importing models, Import UVs, Import a reference image, Import an image as a texture map, Import and export objects with creasing and hard edges, Import Mudbug files from earlier versions, Save or export your work, Send files to Maya, 3ds Max, and Softimage.

**MODULE - III:** Sculpturing overview, Sculpt layers overview, Sculpting basics, Best practices for sculpting, Mesh resolution and subdivision levels, Edit sculpt tool properties, Lock a model, Mask or freeze regions on a

model, Prepare a model for sculpting, Sculpt or paint using curves, Sculpt using maps, Sculpt using stencils, Sculpt using symmetry, Sculpt using layers, Transfer sculpt detail between meshes, Sculpt Tools tray.

**MODULE - IV:** Painting overview ,Painting basics, Prepare a model with UVs for painting ,Adjust color ,Adjust UV positions in 2D, Blur detail in painted textures, Copy painted regions, Create and edit paint layers using Photoshop Create paint masks, Erase paint, Export paint layers, Flood paint, Freeze mesh based on a paint layer ,Hide and show texture tiles on a model, Manage paint layers, Open the Paint Layers window, Paint on your 3D model, Paint across multiple UV tiles, Paint texture maps in 2D,Paint to apply transparency, Paint using symmetry, Paint using a dry brush technique, Paint using brush stamps, Paint using stencil projection, Preview and edit a specular map.

**MODULE – V:** Posing overview, Texture extraction overview, Normal maps overview, Displacement maps overview, Vector displacement maps overview, Ambient occlusion maps overview, Transfer paint layers, Lighting and shading, Rendering, Cameras, Load a reference image into the camera view, Save an image of the 3D View.

**Reference Book :**

- Digital Sculpting with Mudbox: Essential Tools and Techniques for Artists by Mike de la Flor (Author), Bridgette Mongeon (Author)
- Autodesk Mudbox Documentation

**B.Sc.(A&GD)404  
Mini Project**

**Course Objective – Teach students to develop and edit their own complete film.**

**Course Outcome – Students are able to handle camera, develop film and edit their own short film in 2D and VFX.**



**B.Sc.(A&GD)501**  
**Art Lab I Electronic Media**

**Course Objective – Teach students how television works and display program.**

**Course Outcome – Students learn the function of television, how short clips run in television.**

**MODULE I:** History of television, Early Development, The Beginning of Commercial television, the Golden Age, Public Broadcasting, The Rise of Cable, New technology, The Evolution of American Television .

**MODULE II:** Introduction of Television in india (The Doordarshan Era), Popular Serials/Shop Operas in the-liberalization Era, Presentation of Hindu Mythologies on Indian Television, Liberalization Of Indian Economy & the “invasion” From Sky, Introduction of Satellite Channels & the emergence of Reality Shows in India, Conclusion

**MODULE III:** How to Make a Television Commercial, Production Process, Learn About Your Client & Their product(s), Write a Great Script, Storyboard, Schedule Your Shoot, Get great Talent, Book a Great Production Crew, Book the Appropriate Gear, Book the Appropriate location, Plan & test All VFX (Visual Effects) Shoot, Start Post Production on the Commercial, The Final Cut, Visual Effects Pass & Color Grade, Sound Design, Final Audio Mix, Mastering

**MODULE IV:** Introduction Of Electronic Media, Types of Electronic Media, (television, Radio, Internet, Smart Phones may have created a new media Type, Electronic Display, Electronic Streaming, Advertising Introduction of The language of News Media, Television News Production Process

**MODULE V:** Live News & Event Production Process, Floor management & Studio Management Single & Multiple Camera Production, Post Production Process Liner & Non liner Editing Process (technologies & Application), The File Transfer Protocol

**B.Sc.(A&GD)502**  
**Elective II – Stop Motion Animation**

**Course Objective – Teach students how to develop stop animations and edit it.**

**Course Outcome – Students can develop traditional animation.**

**MODULE I:** View Stop Motion Animations Introduction to stop motion animation, Introduction history of stop-motion feature films. Building Puppets, Plug-In Wire and Sockets, Hands and Feet, Puppet Anatomy, Silicone, Casting a Silicone Puppet, Making a Silicone Mold, Plastic Casting, Face Armatures, Replacement Faces and Rapid Prototyping, Replacement Animation Puppets.

**MODULE - II:** - Digital Cinematography, Advance Digital Camera Basics, Aperture and Shutter Speed, Depth of Field, White Balance, Camera Effects, Rack Focus, Blurring Effects, Camera Moves, Stereoscopic Photography. Character Animation, Performance, Two-Character Dialogue, Lip Sync.

**MODULE - III:** Advance Visual Effects for Stop Motion Movie, Compositing, Digital Compositing, Split-Screen and Masks, Blue/Green Screen, Front Light/Back Light, Advanced Compositing for Ava, Effects, Rig and Shadow Removal, Motion Blur, Eye Compositing Effects for Madame Tutli-Putli (case study of stop motion animation films.) case study stop motion movies.

**MODULE - IV:** Object Animation Intro to Claymation, Claymation Project 1, Claymation Project 2, Intro to Professional Armatures, Armature Animation.

**MODULE – V:** Puppet Building , Wire Armatures ,Puppet Construction Completion, Puppet Animation 1, Puppet Animation 2, Sets and Lights,Final Project Pre-production, Final Project Production and Post-production,

**Text & Reference Book:**

1. The Advanced Art of Stop-Motion Animation”Ken.A.Prieb
2. The Animator's Survival Kit” Richard Williams
3. Stop Motion: Craft Skills for Model Animation by **Susannah Shaw** (Author)
4. Stop-motion Animation: Frame by Frame Film-making with Puppets and Models (Basics Animation) by **Barry JC Purves**

**B.Sc.(A&GD)502  
Elective II – 2D Animation**

**Course Objective – Teach students how to develop 2D animation.**

**Course Outcome – Students can develop 2D animation and tools.**

**MODULE I:** introduction to flash, user interface, Workspace Layout panel, Use tools to create Flash content, Timeline, Change background and Stage size, Add graphics to the Stage, Add video, object properties, video control behaviors, Use the Movie Explorer to view the document structure, Basic Tasks: Creating a banner. Examine the completed FLA file, Review the completed FLA file. Ball bouncing.

**MODULE II-** Adding text, creating a symbol, Adding animation to a timeline, creating a button, Inserting Flash on a Dreamweaver site, using roundtrip editing, checking for Flash Player, Basic Tasks: Create Accessible Flash Content. Basic Tasks: Work with Layers, Select a layer Hide and show layers lock a layer Add and name a layer Change the order of layers Organize layers in a folder Add a mask layer Add a guide Editing audio Phonemes - Lip Syncing.

**MODULE III-** Use Layout Tools, Use guides to align an object Change the Stage size Resize objects to match the Stage size Specify snap alignment settings Align an object using the alignment guides Align objects using the Align panel Snap objects to each other Align objects using the Property inspector Align objects using the grid and arrow keys. Walk Cycle.

**MODULE IV-** Create Symbols and Instances, Create a graphic symbol Duplicate and modify an instance of a symbol Modify a symbol Create a movie clip symbol Assign an instance name to the movie clip Add an effect to the movie clip, Add Button Animation and Navigation, Test the SWF file. Designing a character for Flash Animation.

**MODULE V -**Writing simple Write Action Script, Test the application, Action Script: Work with Objects and Classes, Set up your workspace Learn about classes and object types Create an object from a class Create a custom class Create two objects from the Product class Learn about extending existing classes Extend the Movie Clip class to create a new class .Run Cycle. Final project short movie clip in flesh.

**Reference Books:**

1. Flash MX Action Script For Designers BY doug sahlin
2. Adobe Flash Professional CS6 Classroom in a Book by **Adobe Creative Team**

**B.Sc.(A&GD)503  
Advanced 3D Texturing, Rigging & Muscle system I**

**Course Objective – Teach students how to develop Advanced 3D texturing, rigging and Muscle system I.**

**Course Outcome – Students learn advance composition and application.**

**MODULE I-** What Is Advance Compositing? Digital Compositing And Visual Effect Today, Digital Compositing With CGI. CGI Compositing, Set Extension, Match Move, Compositing Visual Effects, Blue screen Compositing, Motion Tracking, Warping And Morphing, Bullet Time Shots, Crowd

Duplication, Atmospheric, Rotoscoping, Wire Removal, Scene Salvage, Compositing Programs, Node-Based Compositors, Layer-Based Compositors, digital image, Structure Of Digital Images, The Pixel, Grayscale Images, Color Images, Four-Channel Images, Attributes Of Digital Images, Digitizing Images. Image Resolution, Image Aspect Ratio, Pixel Aspect Ratio, Bit Depth.

**MODULE II-** Compositing CGI, the cgi composite, scaling the background, semi-transparent pixels, Multipass compositing, diffuse and specular passes, occlusion and shadow passes, reflection pass, depth compositing, multiplane compositing, sims, particle systems, working with pre multiplied CGI, color correcting, transformations and filters, the common mistake.

**MODULE III-Bluescreen Compositing,** The Bluescreen Composite, Pulling The Matte, The Basic Composite, About Keyers, How Keyers Work, Despill, Color Correction, Scaling The Foreground And Background, Sum The Layers, The Final Composite, Helping The Keyer, Garbage Mattes, Procedural Garbage Mattes, Holdout Mattes, Degrain, Compositing Outside The Keyer, Merging Multiple Mattes, Performing The Despill, The Composite, shooting Bluescreens (And Greenscreens), Bluescreen Vs. Greenscreen, Bluescreen Floors, Film Issues, Video Issues, Photography Tips.

**MODULE IV-** Creating A Mask, Key, Mat Te, Alpha, And Mask, Creating A Luma-Key, Creating A Chroma-Key, The Difference Mask, The Color Difference Mask, Geometric Primitives, Drawing Shapes, Painting A Mask, Combo Masks, Rotoscoping, About Rotoscoping, Splines, Articulated Rotos, Interpolation, Keyframes, On 2's, Bifurcation, Extremes, Final Inspection, Motion Blur, Semi-Transparency, images.

**MODULE V-** Image blending, The Mix Operation, The Multiply Operation, The Screen Operation, The Add Operation, The Subtract Operation, Adobe Photoshop Blending Modes, Motion Tracking, Stabilizing A Shot, Match Move, The Magic Of Morphs, Art Of Compositing, Color Correcting, The Black And White Points, Color, Capture Vs. Display Formats, Academy And Full Aperture, Projection Formats, Cinemascope, Vistavision, 70 Mm Film, Super 16 Film, Title Safe, Digitizing Film.

**B.Sc.(A&GD)504  
SUMMER TRAINING**

**Course Objective – Ready students to get practical knowledge and placement.**

**Course Outcome – Students are ready to be placed.**

**B.Sc.(A&GD)601  
Art Lab II PRINT MEDIA**

**Course Objective – Teach students the role of print media in animation**

**Course Outcome – Students learn the concept of print media in animation.**

**MODULE I: Communication Technologies:** Print Media, Books, Magazines, Newspapers, Brochures, Other Print Media. Production of Print Media: Layout, Typography, Graphic Design, Prepress, Printing.

**MODULE II: Printing Technologies:** Overview of Printing Technologies, Letterpress/Flexographic Printing, Gravure Printing, Lithographic/Offset Printing, Screen Printing, Ink Jet.

**MODULE III: Print Quality:** Color Measurement, Color Register, Measurement of Gloss,

Surface Finishing, Surface Finishing Techniques.

**MODULE IV: Print Media Material:** Printing Inks, Offset Printing Inks, Gravure Printing Inks, Flexographic Printing Inks, Letterpress Printing Inks, Screen Printing Inks.

**MODULE V: Printing Presses:** Sheet-fed Printing Presses, Web-fed Printing Presses, Packaging Printing Presses. Drying Methods: Physical Drying(Absorption),Infrared(IR) Drying, Evaporative Drying.

### **BSC(A&GD)602**

#### **ELECTIVE III**

#### **Advanced Modeling with –Z Brush**

**Course Objective – Teach students the use of Z Brush**

**Course Outcome – Students are well versed in Z Brush**

**MODULE I:** An Introduction to Digital Sculpting and Illustration, Learning the Basics about Interface | Tools | Sculpting, Introduction to Sculpting using ZBRUSH.

**MODULE II -** Learning to sculpt using Advanced Tools/Options, Working with Sculpting - Head Study, Sculpting the Head Details (Human/male/female/Animal/Creature/etc).

**MODULE III -** Working with Sculpting -Body Study, Sculpting the Body Details (Human/ male/female /Animal/Creature/etc). Poly Meshes inside ZBRUSH.

**MODULE IV -** Advanced Sculpting using ZBRUSH – I, Sculpting the Basic Details on Models from Other Applications, Advanced Sculpting using ZBRUSH – II, Sculpting Details like Skin Pores | Marks | Wrinkles | Modeling & Sculpting using Zsphere Technique.

**MODULE V -** Texture Painting – I, Learning to Paint Texture using Polypaint Technique, Texture Painting – II, Learning to Paint Texture using Polypaint Technique, Learning to Paint Texture using Projection Master Technique, Baking High-End Sculpting Details to Texture, Learning to Generate Normal Map & Displacement Map, Integration with Other Application.

#### **Reference Books:**

1. ZBrush4R7\_Getting\_Started\_Guide
2. ZBRUSH STARTING GUIDE by pixologic

### **ELECTIVE III**

#### **3D Animation**

**Course Objective – Teach students 3D concept in animation**

**Course Outcome – Students are well versed in 3D animation.**

**MODULE I -** Introduction to 3D Animation, Survey of student and 3D animation experience, Introduction to the Maya GUI, Basic 3D transforms (translation, rotation, scaling) and animation Project: Animate the planets in the provided scene, Learn familiarity with the Maya interface, including object selection, navigation, setting animation keys, and basic transforms , Creating a 3D scene from primitives , Polygon components (vertices, edges, faces) , Creating and editing geometry from primitives, Groups and Hierarchies, Duplication vs. Instancing Cityscape (Week 1 of 5) - Create a metropolitan landscape from primitives and simple hierarchies. At least three (3) unique structures, Polygon mesh editing tools, Additive vs. subtractive modeling, Manually manipulating component, Splitting polygons vs. deleting edges, Polygon extrusion Project: Cityscape - Populate the scene with at least three (3) new sculpted polygon objects, One objects should be a vehicle of some form,

Materials and Texturing, Understanding UV texture space, Simple UV projection, Introduction to materials and textures, Project: Cityscape ,Assign materials and textures to the objects with the scene.

**MODULE II** - Cameras and lighting, Review key framing techniques, Animating props and cameras, Using the Render Settings window to prepare a scene for render, Project: Cityscape, Layout and stage the objects in the scene to create a complex environment, Light the scene to establish a specific mood, Create a custom camera, Animate the camera and vehicle into a 5 to 10 second shot, Animation, Rendering, and Output Techniques, Rendering image sequences from Maya, Importing image sequences into post production and compositing programs, Creating QuickTime movies, Project: Cityscape, Setup the animated scene for rendering, Render the scene out as a sequence of images and then import the sequence into the post compositing program for final QuickTime output, NURBS and spline-based modeling, Basic NURBS spline-based modeling concepts, NURBS to polygon conversion, Boolean modeling techniques, Construction history, Essential steps to prepare a character model for animation, Project: Chess Animation, Build at least two different chess pieces using NURBS and/or polygon techniques. Prep the Pieces for use in class next week. Week 8 – Basic character setup, Non-linear deformers, Deformation order, Hierarchies for animation, Project: Chess Animation, Setup and begin animating at least one of the chess pieces through a 100 frame animation

**MODULE III** Animating a simple character, Key framing tools and techniques, Using the Graph Editor, Understanding motion curves, keys, and tangents, Project: Chess Animation - Finish animating the chess pieces and render the scene, Posing a character, Working with Forward Kinematics (FK) and skeleton hierarchies, FK keying process, Strong poses, Animating to the camera, Project: Character Animation, Character posing exercise with a pre-rigged character, Blocking out a performance, Working with Inverse Kinematics (IK) and skeleton hierarchies, IK keying process, Breaking down a performance, Anticipation, weight, and timing, Project: Character Animation, Using the familiarity with the rig that you gained from the previous weeks exercise, break down a performance into gestures. Using the pre-rigged character, block in the poses and then refine the timing, Refining performance, Using the graph editor to fine tune a performance, Secondary motion, Project: Character Animation, Continue refining the animation. Use the graph editor and add more keys to polish the performance

**MODULE IV** Dynamic particle systems, Adding and using canned effects to a scene, Customizing particle effects, Project: In-class screening and critique will follow. See the Final Assignment details below. Final Project storyboards and proposals are due ,Mental Ray and special topics in 3D rendering, Differences between the software and Mental Ray renderer ,Benefits of Mental Ray, Final gathering ,Image based lighting (IBL) and High Dynamic Range Images (HDRI), Project: Final Project Proposals Due & Progress Check. Continue working on Final Project, Compositing and final polishing techniques - Networked and distributed rendering - Compositing and post effects , Project: Progress Check. Continue working on Final Project.

**MODULE V** Final Project: Choose one of the previous three projects from this class. This will serve as your departure point for the course Final. Your goal for the final is to reinvent that project from the ground up by embellishing details, adding to and refining performance, improve the lighting and compositing, and work the project to a perfect shine. Regardless of which project you wish to engage further, your final must include at least three shots and be at least 15 seconds long. Also, you must incorporate dynamic effects into the scenes and use compositing techniques to refine the final product. choose following:

Option 1 - Cityscape

- Add dynamics to the scene
- Add geometry and textures as necessary in order to push the Cityscape environment further. Embellish details and fill up empty areas, Further develop the animation and lighting
- Apply deeper level compositing techniques to make the final look polished.

Option 2 - Chess Character Animation

- Add dynamics to the scene
- Add to, refine, and improve on the current animation. Emphasize some sort of simple story.
- Texture and light the scene.
- Elaborate on the environment that exists beyond the chess board.
- Apply deeper level compositing techniques to make the final look polished.

Option 3 - Character Animation

- Add dynamics to the scene
- Add to, refine, and improve on the current animation. Emphasize some sort of simple story.
- Build an environment to go along with the performance - 8 , Texture and light the scene.
- Apply deeper level compositing techniques to make the final look polished. The Final project is worth 60 points. Progress checks are due each week leading up to the Final deadline.

The Final project will be graded based on: , Demonstrated effort ,Complexity, range, and effective use of tools, Quality of the finished product (performance, visual quality, etc.)

### **Text and Reference Books**

- Maya's Online Help

- Online resources: [Highend3d.com](http://Highend3d.com) & [Learning-Maya.com](http://Learning-Maya.com)
- Supplemental learning resources and recommended reading Reading: Maya 2008

**BSC(A&GD)603**  
**Advanced 3D Texturing, Rigging & Muscle system II**

**Course Objective** – Teach students advance 3D texturing , rigging and advance Muscle system

**Course Outcome** – Students will be well versed with 2D and 3D animation in advance level.

**MODULE I:** introduction to advanced 3d texturing , Advanced Shading Networks – I, Texture and Shade an Interior of a Hall/Kitchen/Living Room, Advanced Shading Networks - II , Unwrap UVW Map for Complete Character, Paint Texture using Photoshop | Color/Bump/Spec/etc, Paint Texture on Eye | Hairs, Paint Texture on Cloth & Accessories. Displacement maps.

**MODULE II-** 2D & 3D textures, surface shading, surface texture, Unwrap Mechanical Objects like Car/Jeep/Truck/ Render node utilities, Use the Blend Colors utility, Use the Bump 2d utility, Use the Bump 3d utility, Use the Double Switch utility, Use the Hsv to Rgb utility, Use the Multiply Divide utility, Use the Quad Switch utility, Use the Sampler Info utility, Use the Single Switch utility, Use the Stencil utility, Use the Triple Switch utility,

**MODULE III-** Introduction to Mental Ray, Shaders – I, Shaders like DGS/Dielectric/Mia/etc, Introduction to Mental Ray Shaders – II, Shaders like SSS/Displacement/Ambient Occlusion.

**MODULE IV-** Introduction to rigging Building Basic Joint Structure , Biped along IK Setup, Building Joint Structure - Quadrupeds along IK Setup, IK/FK.

**MODULE V-** Introduction to muscle system. Deformers, Cluster, Jiggle , Lattice, Maya Muscle, Nonlinear deformers, Point On Curve deformer Sculpt deformer, Soft Modification deformer, Wire deformer, Wrap deformer, Wrinkle deformer.

**E-link support** - Mastering autodesk Maya 2014

**BSC(A&GD)604**  
**Major Project**

**Course Objective** – Teach students to develop animations and get ready for placement

**Course Outcome** – Students are able to develop full animation and ready to get placement.