



Study & Evaluation Scheme

Of

Bachelor of Science (Animation)

Based on Choice Based Credit System

[Applicable w.e.f. the Academic Session 2020-21 till Revised]



**COLLEGE OF COMPUTING SCIENCES &
INFORMATION TECHNOLOGY**

TEERTHANKER MAHAVEER UNIVERSITY

Delhi Road, Moradabad, Uttar Pradesh-244001

Website: www.tmu.ac.in



TEERTHANKER MAHAVEER UNIVERSITY
(Established under Govt. of U.P. Act No. 30, 2008)
Delhi Road, Bagarpur, Moradabad (U.P.)

Study & Evaluation Scheme

SUMMARY

<i>Institute Name</i>	<i>FOECS, Teerthanker Mahaveer University, Delhi Road, Moradabad</i>
<i>Programme</i>	<i>B.Sc. Animation</i>
<i>Duration</i>	<i>Three Years full time(Six Semesters)</i>
<i>Medium</i>	<i>English</i>
<i>Minimum Required Attendance</i>	<i>75%</i>
<u>Credits</u>	
<i>Maximum Credits</i>	<i>139</i>
<i>Minimum Credits Required for Degree</i>	<i>133</i>

Assessment:

Evaluation			Internal	External	Total
Theory			40	60	100
Practical/ Dissertations/ Project Reports/ Viva-Voce			50	50	100
Class Test-1	Class Test-2	Class Test-3	Assignment(s)	Attendance & Participation	Total
Best two out of three					
10	10	10	10	10	40
Duration of Examination			External	Internal	
			3 Hours	1.5 Hours	



To qualify the course a student is required to secure a minimum of 45% marks in aggregate including the semester end examination and teachers continuous evaluation.(i.e. both internal and external).A candidate who secures less than 45% of marks in a course shall be deemed to have failed in that course. The student should have at least 45% marks in aggregate to clear the semester.

Question Paper Structure

1	<p><i>Section1:It shall consist of short answer type questions (answer should not exceed 50 words). This section will essentially assess COs related to Remembering & Understanding. This section will contain five questions and every question shall have an “or” option. (Questions should be from each unit and the “or” option question should also be from the same unit) each question shall have equal weightage of 2 Marks and total weightage of this section shall be 10 Marks.</i></p>								
2	<p><i>Section:2 It shall consist of long answer type questions. This section will also contain five questions and every question should assess an specific CO and should have an “or” option (Questions should be from the entire syllabus and the “or” option question should assess the same CO). Each question shall have equal weightage of 10 Marks and total weightage of this section shall be 50 Marks.</i></p> <p><i>There must be at least one question from the entire syllabus to assess the specific element of the Higher Level of Learning (Thinking). Every question in this section must essentially assess at least one of the following aspects of learning: Applying, Analyzing, Evaluating and Creating/ Designing/ Developing.</i></p> <p><i>The question must be designed in such a way that it assesses the concerned CO in entirety. It means a question could have multiple parts depending upon the requirement of the Specific Course Outcome.</i></p>								
3	<p>Practical Evaluation: Internal Evaluation (50 marks) <i>The Internal evaluation would also be done by the Internal Examiner based on the experiment performed during the internal examination</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><i>EXPERIMENT (30 MARKS)</i></td> <td style="text-align: center;"><i>ATTENDANCE (10 MARKS)</i></td> <td style="text-align: center;"><i>VIVA (10 MARKS)</i></td> <td style="text-align: center;"><i>TOTAL INTERNAL (50 MARKS)</i></td> </tr> </table> <p>External Evaluation (50 marks) <i>The external evaluation would also be done by the External Examiner based on the experiment performed during the external examination.</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><i>EXPERIMENT (30 MARKS)</i></td> <td style="text-align: center;"><i>FILE WORK (10 MARKS)</i></td> <td style="text-align: center;"><i>VIVA (10 MARKS)</i></td> <td style="text-align: center;"><i>TOTAL EXTERNAL (50 MARKS)</i></td> </tr> </table>	<i>EXPERIMENT (30 MARKS)</i>	<i>ATTENDANCE (10 MARKS)</i>	<i>VIVA (10 MARKS)</i>	<i>TOTAL INTERNAL (50 MARKS)</i>	<i>EXPERIMENT (30 MARKS)</i>	<i>FILE WORK (10 MARKS)</i>	<i>VIVA (10 MARKS)</i>	<i>TOTAL EXTERNAL (50 MARKS)</i>
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IMPORTANT NOTES:



1	<i>The purpose of examination should be to assess the Course Learning Outcomes (CLO) that will ultimately lead to of attainment of Programme Specific Outcomes (PSOs). A question paper must assess the following aspects of learning: Remember Understand, Apply, Analyze, and Evaluate & Create (reference to Bloom's Taxonomy).</i>
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Program Structure- B.Sc. Animation

A. Introduction:

The **Bachelor of Science in Animation** is a graduation program the course

covers advanced techniques in: Cinematography; Lighting; Non Linear Editing; Digital Visual FX; 3dmodelling and Animation; Compositing; Concept Art and Design; Sound Design and Production Design. By the end of the course you will be able to create a range of both traditional and innovative film and video

Productions such as short narrative films and high concept promotional videos to professional Standards. Also covered during the course will be English language studies along with the accountancy. After completing the program successfully student will be able to;

- Demonstrate techniques of cinematography and digital image manipulation
- Understand the production pipeline
- Work with high end visual effects and 3d software
- Work on high end film making equipment e.g. DSLR, video cameras, Lighting equipment and Chroma
- Produce work portfolio for employer engagement

B.Sc. Animation : Three-Year (6-Semester) CBCS Programme

Basic Structure: Distribution of Courses

S.No.	Type of Course	Credit Hours	Total Credits
1	Core Course (CC)	15 Courses of 4Credit Hrs. and 13 course 2credit Hrs. each (Total Credit Hrs. (15X4)+(13X2))	86
2	Ability-Enhancement Compulsory Course (AECC)	4Courses of 3Credit Hrs. each , 2courses 4Credit hrs. each and one course 2credit each(Total Credit Hrs. ((4X3)+(2X4)+2)	22



3	Skill-Enhancement Elective Course (SEC)	1 Courses of 6 Credit Hrs. ,1course of 3credit Hrs. and 1 course 2 credit Hrs. (Total Credit Hrs. (6+3+2)	11
4	Open/Generic Elective Course (GEC)	2 Courses of3 Credit Hrs. each (Total Credit Hrs. 2X3)	6
5	Program/Discipline Specific Elective Course (DSEC)	5 Courses of 2 Credit Hrs. each and one course with 4 credit(Total Credit Hrs. (5X2)+4)	14
Total Credits			139

B. Choice Based Credit System (CBCS)

Choice Based Credit System (CBCS) is a versatile and flexible option for each student to achieve his target number of credits as specified by the UGC and adopted by our University.

The following is the course module designed for the MBA program:

Core Course (CC): Core courses of B.Sc. Animation program will provide a holistic approach to animation industry, giving students an overview of the field, a basis to build and specialize upon. These core courses are the strong foundation to establish visual knowledge and provide broad multi-disciplined knowledge can be studied further in depth during the elective phase.

The core courses will provide more practical-based knowledge, case-based lessons and collaborative learning models. It will train the students to analyse, decide, and lead-rather than merely know-while creating a common student experience that can foster deep understanding, develop decision-making ability and contribute to the business and community at large.

The integrated foundation is important for students because it will not only allow them to build upon existing skills, but they can also explore career options in a range of industries, and expand their understanding of various Animation and design fields.

Ability Enhancement Compulsory Course (AECC):As per the guidelines of Choice Based Credit System (CBCS) for all Universities, including the private Universities, the Ability Enhancement Compulsory Course (AECC) is a course designed to develop the ability of students in communication (especially English) and other related courses where they might find it difficult to communicate at a higher level in their prospective job at a later stage due to lack of practice and exposure in the language, etc. Students are motivated to learn the theories, fundamentals and tools of communication which can help them develop and sustain in the corporate environment and culture.

Skill Enhancement Course: This course may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.

Open/Generic Elective Course (GEC): Open/Generic Elective is an interdisciplinary additional subject that is compulsory in program. The score of Generic Elective is counted in your overall aggregate marks under Choice Based Credit System (CBCS).

Value Added Audit Course (VAC):A value added audit course is a non-credit course which is basically meant to enhance general ability of students in areas like soft skills, quantitative aptitude and reasoning ability - required



for the overall development of a student and at the same time crucial for industry/corporate demands and requirements. The student possessing these skills will definitely develop acumen to perform well during the recruitment process of any premier organization and will have the desired confidence to face the interview. Moreover, these skills are also essential in day-to-day life of the corporate world. The aim is to nurture every student for making effective communication, developing aptitude and a general reasoning ability for a better performance, as desired in corporate world. There shall be one course each in Semester I & Semester II and will carry no credit, however, it will be compulsory for every student to pass these courses with minimum 45% marks to be eligible for the certificate. These marks will not be included in the calculation of CGPI. Students have to specifically be registered in the specific course of the respective semesters.

Program/Discipline Specific Elective Course (DSEC): The discipline specific elective course is chosen to make students specialist or having specialized knowledge of a specific domain like marketing, human resource, etc

C. Programme Outcomes (POs)

PO – 1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO – 2	Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
PO – 3	Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings.
PO – 4	Effective Citizenship: Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO – 5	Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO – 6	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
PO – 7	Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.
PO – 8	Economic Independence & Employability Potential: Economic Independence & Employability Potential: Acquire the ability to be involved in economically sustainable employment opportunity and inculcate entrepreneurial abilities.
PO – 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO – 10	Design/development of solutions: Design solutions using the the technical skillll which meet the specified needs to appropriate consideration for the public requirement

D. Programme Specific Outcomes (PSOs)

The learning and abilities or skills that a student would have developed by the end of Three-year **B.Sc. Animation**. Department has specifically defined few objectives of this program which make students realize the fact that the knowledge and techniques learnt in this course has direct implication for the betterment of society and its sustainability.



PSO – 1	Understanding the socially acceptable creative solutions for complex designs hence the further new creative can be developed.
PSO – 2	Analyzing the complex Visual and creative designing problems with the application of modern and appropriate techniques for sustainable development
PSO – 3	Applying the artistic skill and knowledge gained during the study of the program from Animation for developing the new visual media and graphics
PSO – 4	Applying the knowledge of ethical design principles required to work in a team as well as to lead a team
PSO – 5	Creating and solving real life complex design problems faced in industries and/or during industry work.
PSO – 6	Creating complex Visual and creative designs by using the application of modern and appropriate techniques for sustainable development.

E. Pedagogy & Unique practices adopted: “Pedagogy is the method and practice of teaching, especially for teaching an academic subject or theoretical concept”. In addition to conventional time-tested lecture method, the institute will **emphasize on experiential learning**:

1. Case Based Learning: Case based learning enhances student skills at delineating the critical decision dilemmas faced by organizations, helps in applying concepts, principles and analytical skills to solve the delineated problems and develops effective templates for animation industry exposure.

2. Video Based Learning (VBL) & Learning through Movies (LTM): These days technology has taken a front seat and classrooms are well equipped with equipment and gadgets. Video-based learning has become an indispensable part of learning. Similarly, students can learn various concepts through movies. In fact, many teachers give examples from movies during their discourses. Making students learn few important theoretical concepts through VBL & LTM is a good idea and method. The learning becomes really interesting and easy as videos add life to concepts and make the learning engaging and effective. Therefore, our institute is promoting VBL & LTM, wherever possible.

3. Field / Live Projects: The students, who take up experiential projects in companies, where senior executives with a stake in teaching guide them, drive the learning. All students are encouraged to do some live project other their regular classes.

3. Industrial Visits: Industrial visit are essential to give students hand-on exposure and experience of how things and processes work in industries. Our institute organizes such visits to enhance students’ exposure to practical learning and work out for a report of such a visit relating to their specific topic, course or even domain.

4. Special Guest Lectures (SGL) & Extra Mural Lectures (EML): Some topics/concepts need extra attention and efforts as they either may be high in difficulty level or requires experts from specific industry/domain to make things/concepts clear for a better understanding from the perspective of the industry. Hence, to cater to the present needs of industry we organize such lectures, as part of lecture-series and invite prominent personalities from academia and industry from time to time to deliver their vital inputs and insights.

5. Student Development Programs (SDP): Harnessing and developing the right talent for the right industry an overall development of a student is required. Apart from the curriculum teaching various student development programs (training programs) relating to soft skills and interview skills, that may be required as per the need of the student and industry trends, are conducted across the whole program. Participation in such programs is solicited through volunteering and consensus.



6. Industry Focused programmes: Establishing collaborations with various industry partners to deliver the programme on sharing basis. The specific courses are to be delivered by industry experts to provide practice based insight to the students.

7. special assistance programe for slow learners & fast learners: write the note how would you identify slow learners, develop the mechanism to correcting knowledge gap. Terms of advance topics what learning challenging it will be provided to the fast learners

9. orientation program:

How many days program?

What is the purpose ?

What type of topics will be covered?

10. Extracurricular Activities: organizing & participation in extracurricular activities will be mandatory to help students develop confidence & face audience with care.



B.Sc. ANIMATION
Semester I

S. No.	Category	Course Code	Course Name	Periods			Credits	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	CC-1	BSA-101	Fundamentals of Computer and MS- Office	3	1	0	4	40	60	100
2	CC-2	BSA-102	Drawing For Animation	4	0	0	4	40	60	100
3	CC-3	BSA-110	Concepts of Graphic Design -1 (Photoshop)	3	1	0	4	40	60	100
4	CC-4	BSA-111	Concept of Graphics and illustration (Illustrator)	3	1	0	4	40	60	100
5	AECC-1	TMUGE101	English communication -I	2	1	0	3	40	60	100
6	CC-5	BSA -155	Fundamentals of Computers and MS- Office -LAB	0	0	4	2	50	50	100
7	CC-6	BSA- 157	Graphics designing -LAB	0	0	4	2	50	50	100
			Total	15	4	8	23	300	400	700



B.Sc. ANIMATION
Semester II

S. No.	Category	Course Code	Course Name	Periods			Credits	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	CC-7	BSA-210	Idea generation and development	4	0	0	4	40	60	100
2	CC-8	BSA-211	Concepts of 2D Animation and Techniques	3	1	0	4	40	60	100
3	CC-9	BSA-212	Concepts of cinematography & photography	3	1	0	4	40	60	100
4	CC-10	BSA-257	Audio & Video-Editing- LAB	0	0	4	2	50	50	100
5	CC-11	BSA-258	2D Animation project	0	0	4	2	50	50	100
6	CC-12	BSA-256	Concepts of cinematography & photography- LAB	0	0	4	2	50	50	100
7	AECC-2	TMUGE201	English Communication – II	2	0	2	3	40	60	100
			Total	12	2	14	21	310	390	700



**B.Sc. ANIMATION
Semester III**

S No.	Category	Course Code	Course Name	Periods			Credits	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	CC-13	BSA-309	Basics of motion graphics & FX (After Effect)	3	1	0	4	40	60	100
2	CC-14	BSA-310	Fundamentals of 3D & concepts of modeling & texturing	3	1	0	4	40	60	100
3	CC-15	BSA-311	Experimental Animation	3	1	0	4	40	60	100
4	SEC-1	TMUGE301	English Communication-III	2	0	2	3	40	60	100
5	CC-16	BSA-356	Fundamentals of 3D & concepts of modeling & texturing-Lab	0	0	4	2	50	50	100
6	CC-17	BSA-357	Basics of motion graphics & FX (After Effect) -LAB	0	0	4	2	50	50	100
7	CC-18	BSA-358	Experimental Animation -LAB	0	0	4	2	50	50	100
8	AECC-3	BSA-359	Entrepreneurship	3	1	0	4	40	60	100
Total				14	4	14	25	350	450	800

VAC (Value Added Courses)

The Value added course is audit course which will be compulsory to pass with 45% marks whenever it will not be added towards overall result.

S. No.	Course Type	Course Code	Course Name	Periods			Credit	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	VAC-I	TMUGS-301	Managing self	2	1	0	0	50	50	100



B.Sc. ANIMATION
Semester IV

S. No	Category	Course Code	Course Name	Periods			Credits	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	CC-19	BSA-408	Concepts of Lighting & shading with Maya	3	1	0	4	40	60	100
2	AECC-4	TMUGE401	English Communication-IV	2	0	2	3	40	60	100
*3	DSE-1		Discipline specific elective	2	0	0	2	40	60	100
			Elective-1							
			Elective-2							
4	AECC-5	BSA-412	Advance Digital Sculpting	3	1	0	4	40	60	100
**5	DSE-2		Discipline specific elective	0	0	4	2	50	50	100
			Elective-3							
			Elective-4							
6	SEC-2	BSA-460	Advance Digital Sculpting LAB	0	0	4	2	50	50	100
7	CC-20	BSA-461	Concepts of Lighting & shading-with Maya -LAB	0	0	4	2	50	50	100
8	AECC-6	BSA-462	Project(3D Modeling/Game modeling/Architectural design)	0	0	4	2	50	50	100
Total				10	2	18	21	360	440	800



B.Sc. ANIMATION
Semester V

S. No.	Category	Course Code	Course Name	Periods			Credits	Evaluation Scheme			
				L	T	P		Internal	External	Total	
1	CC-21	BSA-512	Concept of 3D Animation & Rigging with Maya	3	1	0	4	40	60	100	
2	DSE-3		Discipline specific elective	Elective-5	3	1	0	4	40	60	100
				Elective-6							
3	CC-22	BSA-515	Visual effect techniques.	3	1	0	4	40	60	100	
4	CC-23	BSA-558	Concepts 3D Animation & Rigging with Maya-LAB	0	0	4	2	50	50	100	
5	CC-24	BSA-559	Advance Editing Techniques(FCP)-LAB	0	0	4	2	50	50	100	
6	DSE-4		Discipline specific elective	Elective-7	0	0	4	2	50	50	100
				Elective-8							
7	CC-25	BSA-560	Visual effect techniques- LAB	0	0	4	2	50	50	100	
8	OE-1		Open Elective-I	3	0	0	3	40	60	100	
Total				12	3	16	23	360	440	800	



**B.Sc. ANIMATION
Semester VI**

S. No.	Category	Course Code	Course Name		Periods			Credit	Evaluation Scheme		
					L	T	P		Internal	External	Total
1	DSE-5		Discipline specific elective	Elective-9	2	0	0	2	40	60	100
				Elective-10							
2	CC-26	BSA-609	Concepts of 3D Dynamics and Liquid simulation.		3	1	0	4	40	60	100
3	AECC-7	TMU-601	Environmental Studies		2	1	0	3	40	60	100
4	CC-27	BSA-607	Production Process of 3D Animation		3	1	0	4	40	60	100
5	DSE-6		Discipline specific elective	Elective-11	0	0	4	2	50	50	100
				Elective-12							
6	CC-28	BSA-659	Concepts of 3D Dynamics and Liquid simulation.LAB		0	0	4	2	50	50	100
7	SEC-3	BSA-660	Project & Portfolio development		0	0	4*	6	50	50	100
8	OE-2		Open Elective-II		3	0	0	3	40	60	100
Total					13	3	12	26	350	450	800
<p>The contact hours for BSA660 will be 4 hours in the course matrix and rest of 8 hours will be for students self learning and practicing.</p>											



List of Discipline Electives Courses

Discipline Specific Elective Courses Semester-IV

Course Type	Course Code	Course	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
DSE 1	BSA-410 (Elective-1)	Concept of Game design				2	40	60	100
	BSA-411 (Elective-2)	Concept of Architectural design	2	0	0				
Choose any one from out of the following groups									
DSE 2	BSA-463 (Elective-3)	Concept of Game design LAB				2	50	50	100
	BSA-464 (Elective-4)	Concept of Architectural design LAB	0	0	4				
Choose any one from out of the following groups									



Discipline Specific Elective Courses

Semester-V

Course Type	Course Code	Course	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
DSE 3	BSA-514 (Elective-5)	Concept of web and UI/UX Design	3	1	0	4	40	60	100
	BSA-515 (Elective-6)	Design for print							
Choose any one from out of the following groups									
DSE 4	BSA-561 (Elective-7)	Concept of web and UI/UX Design LAB	0	0	4	2	50	50	100
	BSA-562 (Elective-8)	Design for print LAB							
Choose any one from out of the following groups									



Discipline Specific Elective Courses
Semester-VI

Course Type	Course Code	Course	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
DSE 5	BSA-608 (Elective-9)	Concepts of Augmented reality & virtual reality	2	0	0	2	40	60	100
	BSA-610 (Elective-10)	Professional 3D design with Cinema 4D							
Choose any one from out of the following groups									
DSE 6	BSA-658 (Elective-11)	Concepts of Augmented reality & virtual reality LAB	0	0	4	2	50	50	100
	BSA-661 (Elective-12)	Professional 3D design with Cinema 4D LAB							
Choose any one from out of the following groups									



Course Code: BSA101	Core Course – 1 B.Sc. Animation- Semester-I Fundamentals of Computers & MS- Office	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding computers, parts of computer, need of internet, Word Processor, Spreadsheets, Database and PowerPoint Presentations.	
CO2.	Understanding the basic features of Ms-Word like Display documents using various views, Font Style, tabs and tables, clip art and pictures, Macro, Mail-Merge.	
CO3.	Analyzing the formulas, functions and absolute relative referencing in MS Excel.	
CO4.	Applying the features of Word Processor to create a document.	
CO5.	Applying some formulas in MS Excel to create a database.	
CO6.	Applying animation tools in PowerPoint to create a interactive presentation.	
Course Content:		
Unit-1:	Introduction: Introduction and definition of computer, functional components of a computer system (Input, CPU, Storage, Output Unit), types of memory and memory hierarchy, functioning inside a computer, classification of computers, Software – Introduction, types of software with examples, Introduction to languages, Compiler, Interpreter and Assembler.	8 Hours
Unit-2:	Essential Components of Computer, Hardware – Input Devices – Keyboard, Printing Devices, Scanner, Bar Code Reader, Output Devices – Visual Display Unit (VDU), Printers, Plotters, Types of internet connections, Use of Internet to enhance knowledge, searching on internet, downloading/uploading contents from/to internet, creating e-mail account, etiquettes for communication with email.	8 Hours
Unit-3:	Starting MS WORD 2007, Creating and formatting a document, Changing fonts style and size, Table Creation and operations, Autocorrect, Auto text, spell Check, Inserting objects, Page setup, Page Preview, Printing a document, Mail Merge.	8 Hours
Unit-4:	Starting MS – Excel 2007, Work sheet, cell inserting Data into Rows/ Columns, Alignment, Text wrapping , Sorting data, Auto Sum, Use of functions, referencing formula cells in other formulae, Naming cells, Generating graphs, Worksheet data and charts with Excel, Creating Hyperlink, Page set up, Print Preview, Printing Worksheets.	8Hours



Unit-5:	Starting MS – Power Point 2007, Creating a presentation using auto content Wizard, Blank Presentation, creating, saving and printing a presentation, Adding a slide to presentation, Navigating through a presentation, slide sorter, slide show, editing slides, Using Clipart, Word art gallery, Adding Transition and Animation effects, setting timings for slide show. Starting MS – Access 2007 Creating tables, queries, forms, reports, pages, macro, module...	8 Hours
<u>Text Books:</u>	1. Ron Mansfield, <i>Working in Microsoft Office</i> , TMH	
<u>Reference Books:</u>	1. V. Rajaraman, <i>Fundamentals of Computers</i> , PHI 2. Peter Norton's, <i>Introduction to Computers</i> , TMH Page-1 <u>Online reference</u> https://www.computer-pdf.com/tutorials-ms-office-basics * Latest editions of all the suggested books are recommended.	



Core Course – 2		
B.Sc. Animation- Semester-I		
Course Code: BSA102	Drawing For Animation	L-3 T-0 P-2 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the techniques of drawing for animation	
CO2.	Understanding the drawing techniques of backgrounds and it's elements for animation movies	
CO3.	Understanding the techniques of perspective drawing using light and shadow.	
CO4.	Applying the human anatomy study for the character development and movements.	
CO5.	Applying the Anatomy study on cartoons, child character, and animal drawing.	
Course Content:		
Unit-1:	Introduction: An introduction of how to make drawings for animation, shapes and forms, About 2D and 3D drawings, Life drawing, Caricaturing-fundamentals, Exaggeration, Silhouette.	8 Hours
Unit-2:	Background elements, trees, mountains, clouds, water bodies, meadows, buildings, science fiction story backgrounds, backgrounds of mythological stories perspective drawing Lights and shadows day night scenes.	8 Hours
Unit-3:	Brush, Pencil, Color replacement tool, Clone tool, Smudge tool, Patch tool, Eraser etc. Digital painting, make a natural scene (winter), make a natural scene (summer).Make digital painting of a celebrity & photo retouching.	8 Hours
Unit-4:	MALE AND FEMALE ANATOMY- Structure of male and female body, comparative study of male and female body. Draw human body from 2d and 3d basic shapes. Body parts:- Head, Torso, hands, legs, foot and palm. Face:- Different elements of face and their distribution on face. Study of mouth, nose, eyes and ears	8 Hours
Unit-5:	Child, Animal and cartoon study- Understanding child's figure, proportion and construction of child body, face, chubbiness, hand, feet and gestures. Animals from basic forms, understanding motion and grace of animals, turning animals to character, face, legs, tails, perspectives. Understanding cartoon characters, drawing from basic shapes, line of action, distortion of proportion, cartoon faces, eyes, mouths, hairs, nose, hands, feet, gestures and poses.	8 Hours
Text Books:	1.A handbook of Perspective-Stephen M. Ship	
Reference Books:	1.Human anatomy by-Victor Ferard 2.Figure drawing made easy by-Aditya Chari 3.Cartoons- Persten Blair Online reference https://www.drawinghowtodraw.com/stepbystepdrawinglessons/category/drawing-cartoons/animation-tutorials/ * Latest editions of all the suggested books are recommended.	



<p>Course Code: BSA110</p>	<p>Core Course – 3 B.Sc. Animation- Semester-I Concepts of Graphic Design – I (Photoshop)</p>	<p>L-3 T-1 P-0 C-4</p>
<p>Course Outcomes:</p>	<p>On completion of the course, the students will be :</p>	
<p>CO1.</p>	<p>Understanding the basic concepts of graphics and image editing in Adobe Photoshop.</p>	
<p>CO2.</p>	<p>Understanding the basics of print media design and digital typography in Adobe Photoshop.</p>	
<p>CO3.</p>	<p>Understanding the techniques of digital painting, matte painting and image retouching in Adobe Photoshop.</p>	
<p>CO4.</p>	<p>Applying the techniques and tools in Adobe Photoshop.</p>	
<p>CO5.</p>	<p>Creating the elements of Web page template design in Adobe Photoshop</p>	
<p>Course Content:</p>		
<p>Unit-1:</p>	<p>Introduction: Photoshop and its interface, Navigation and All tools, Layer concept, working with basic selections, advanced, transform ,selection transform,Selections-1(on the basis of channels, colour range, extract, filter etc), Exercises on marquee tools,</p>	<p>8 Hours</p>
<p>Unit-2:</p>	<p>Pen tool ,Shapes ,Path, path selection, Text tool, types of text tools, digital typography, print designs, blending options, gradient tool, blending modes, RGB channels.</p>	<p>8 Hours</p>
<p>Unit-3:</p>	<p>Perspective drawing Lights and shadows day night scenes, Concept of layers, Back ground, stage, foreground elements, Layout designs.</p>	<p>8 Hours</p>
<p>Unit-4:</p>	<p>Color theory, basic of color, fill type, layer style, adjustment layer, group layer, Layer menu, Color adjustment, Image menu. Convert a B&W image into color (Use variation), Choose a theme (Music, Festivals, Sports, Dance) and Design 5-8 graphics based on it, Color Modes, Color Corrections, Advanced color correction techniques (levels, Curves, Hue, Saturation etc), Design an graphical Ad from your own style and imagination.</p>	<p>8 Hours</p>
<p>Unit-5:</p>	<p>Filters, vector Mask, layer mask, clipping path mask, Concepts of matte painting, Creation of digital matte painting. Action, creation of panorama image. Camera raw tools. tribal art, create an animal character, "Plan a story of that character & Make its backgrounds in three/four frames", Make posters on nature/earth, Matte Painting, Composition, Creating images for the web: Exporting images from Photoshop.</p>	<p>8 Hours</p>
<p>Text Books:</p>	<p>1. Adobe Photoshop CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.</p>	
<p>Reference Books:</p>	<p>1. Teach Yourself Visually - Adobe Photoshop CS6 by Mike Wooldridge (Wiley publishing). 2. Adobe Photoshop CS6 Bible by Steve Johnson. 3. Adobe Photoshop CS6 Bible by Lisa Danae Dayley & Brad Dayley. * Latest editions of all the suggested books are recommended. Online reference https://helpx.adobe.com/pdf/photoshop_reference.pdf</p>	



Course Code: BSA111	Core Course – 4 B.Sc. Animation- Semester-I Concept of Graphics and illustration (Illustrator)	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the concepts of Graphic Design & vector illustration in Adobe illustrator and its application using various tool	
CO2.	Understanding the knowledge drawing & colors to create the 2D animation background in Adobe illustrator	
CO3.	Understanding the uses of advance tools of Adobe illustrator in creation of advertisement and infographics	
CO4.	Analyzing the elements used for graphics designing and print media in adobe illustrator.	
CO5.	Applying the techniques and tools in Adobe illustrator.	
Course Content:		
Unit-1:	Introduction: Introduction to Adobe Illustrator: Introduction to Adobe Illustrator, work area, workspaces and tools. Opening files, importing art work, viewing art work, rulers and grids	8 Hours
Unit-2:	Drawing in Illustrator, drawing lines and shapes, pencil tool, pen tool, editing drawing, tracing, symbols, colouring, applying colours, swatches, adjusting colour and colour settings.	8 Hours
Unit-3:	Painting with Illustrator, fills, strokes, brushes, transparency, blending, gradient, meshes and colour blending. Selecting, Transformation, Scaling, Grouping, Reshaping, Cutting, Blending of objects.	8 Hours
Unit-4:	Creating 3D object, text and typing, special effects, filters, shadows, glow, feathering graphic styles.	8 Hours
Unit-5:	Clipping mask, Create outlines, templates, graphic style, file formats, Export illustrator Files in Other Formats.	8 Hours
Text Books:	1. Adobe Illustrator CS6 Bible by Steve Johnson.	
Reference Books:	1. Adobe Illustrator CS6 Bible by Steve Johnson. 2. Adobe Illustrator CS6 Bible by Ted Alspach. * Latest editions of all the suggested books are recommended. Online reference https://helpx.adobe.com/in/illustrator/user-guide.html	



Course Code: TMUGE101	AECC-1 B.Sc. Animation- Semester-I English Communication – I	L-2 T-1 P-0 C-3
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Remembering and understanding the basics of English grammar and vocabulary.	
CO2.	Understanding the basics of communication.	
CO3.	Applying correct vocabulary and tenses in sentence construction.	
CO4.	Analysing different types of tenses and communication.	
CO5.	Drafting applications in correct format on common issues.	
Course Content:		
Unit-1:	Introductory Sessions: <ul style="list-style-type: none"> • Self-Introduction • Building Self Confidence: Identifying strengths Failure, strategies to overcome Fear of Failure • Importance of English Language in present scenario (<i>Practice: Self-introduction session</i>) 	8 Hours
Unit-2:	Basics of Grammar <ul style="list-style-type: none"> • Parts of Speech • Tense • Subject and Predicate • Vocabulary: Synonym and Antonym (<i>Practice: Conversation Practice</i>) 	8 Hours
Unit-3:	Basics of Communication <ul style="list-style-type: none"> • Communication : Process, Types, 7Cs of Communication, Importance & Barrier • Language as a tool of communication • Non-verbal communication: Body Language • Etiquette & Manners • Basic Problem Sounds (<i>Practice : Pronunciation drill and building positive body language</i>) 	8 Hours



Unit-4:	Application writing <ul style="list-style-type: none"> • Format & Style of Application Writing • Practice of Application writing on common issues. 	8 Hours
Unit-5:	Value based text reading: Short Story (Non- detailed study) <ul style="list-style-type: none"> • Gift of Magi – O. Henry 	8 Hours
<u>Text Books:</u>	1. Singh R.P., An Anthology of Short stories, O.U.P. New Delh	
<u>Reference Books:</u>	1.Kumar, Sanjay. &Pushp Lata. “ <i>Communication Skills</i> ” New Delhi: Oxford University Press. 2.Carnegie Dale. “ <i>How to win Friends and Influence People</i> ” New York: Simon & Schuster. 3.Harris, Thomas. A. “ <i>I am ok, You are ok</i> ” New York: Harper and Row. 4.Goleman, Daniel. “ <i>Emotional Intelligence</i> ” Bantam Book. * Latest editions of all the suggested books are recommended. <u>Online reference</u> https://kortschakcenter.usc.edu/wp-content/uploads/2015/05/Workshop-Presentation-condensed.pdf	



Evaluation Scheme

Internal Evaluation			External Evaluation		Total Marks
40 Marks			60 Marks		100
20 Marks (Best 2 out of Three CTs) (From Unit- II, IV & V)	10 Marks (Oral Assignments) (From Unit I & III)	10 Marks (Attendance)	40 Marks (External Written Examination) (From Unit- II, IV & V)	20 Marks (External Viva)* (From Unit I & III)	

*Parameters of External Viva

Content	Body Language	Confidence	Question Responsiveness	TOTAL
05 Marks	05 Marks	05 Marks	05 Marks	20 Marks

Note: External Viva will be conducted by 2-member committee comprising

- a) One Faculty teaching the class
- b) One examiner nominated by University Examination cell.

Each member will evaluate on a scale of 20 marks and the average of two would be the 20 marks obtained by the students.



Course Code: BSA155	Core Course – 5 B.Sc. Animation- Semester-I Fundamentals of Computers & MS- Office(LAB)	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the basic features of Ms-Word like Display documents using various views, Font Style, tabs and tables, clip art and pictures, Macro, Mail-Merge.	
CO2.	Analyzing the formulas, functions and absolute relative referencing in MS Excel.	
CO3.	Applying the features of Word Processor to create a document.	
CO4.	Applying some formulas in MS Excel to create a database.	
CO5.	Creating animation tools in PowerPoint to create a interactive presentation.	
CO6.	Creating PowerPoint presentations by using tools available in MS PowerPoint. Also editing and modifying it using animation tools.	
Course Content:		
Experiments:	<ol style="list-style-type: none"> 1. Introduction to Windows, Note pad, Paint brush, Word Pad, calculator. 2. Introduction to Internet Web Browser, Search Engine, Creating E-Mail account, Attaching Documents, Sending and Receiving E-Mails, Bookmarks, favorites, internet configure. 3. Starting MS WORD 2007, Creating and formatting a document, Changing fonts style and size, Table 4. Creation and operations, Autocorrect, Auto text, spell Check, Inserting objects, Page setup, Page Preview, Printing a document, Mail Merge. 5. Starting MS – Excel 2007, Work sheet, cell inserting Data into Rows/ Columns, Alignment, Text wrapping, Sorting data, Auto Sum, Use of functions, referencing formula cells in other formulae, Naming cells, Generating graphs, Worksheet data and charts with Excel, Creating Hyperlink, Page setup, Print Preview, Printing Worksheets. 6. Starting MS – Power Point 2007, Creating a presentation using auto content Wizard, Blank Presentation, creating, saving and printing a presentation, Adding a slide to presentation, 7. Navigating through a presentation, slide sorter, slide show, editing slides, Using Clipart, Word art gallery, Adding Transition and Animation effects, setting timings for slide show. 8. Starting MS – Access 2007 – Creating tables, queries, forms, reports, pages, macro, module. 	



<u>Text Books:</u>	1. Ron Mansfield, <i>Working in Microsoft Office</i> , TMH	
<u>Reference Books:</u>	1. V. Rajaraman, <i>Fundamentals of Computers</i> , PHI 2. Peter Norton's, <i>Introduction to Computers</i> , TMH Page-1 * Latest editions of all the suggested books are recommended. <u>Online reference:</u> https://www.computer-pdf.com/tutorials-ms-office-basics	



Course Code: BSA157	Core Course – 6 B.Sc. Animation- Semester-I Graphics Designing -LAB	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Analyzing the concepts of graphic designing & image editing techniques in Adobe Photoshop	
CO2.	Applying the techniques of color correction using Adjustment Layer on the image in Adobe Photoshop.	
CO3.	Applying the brush and advance tools in Adobe Photoshop to make digital painting and matte Painting.	
CO4.	Applying the Graphic Design &vector illustration techniques in Adobe illustrator.	
CO5.	Creating the elements used in designing of buttons, print ads and web page templates	
CO6.	Creating the design of advertisement and infographics with text and advance tool in Adobe Illustrator	
Course Content:		
Experiments:	<ol style="list-style-type: none"> 1. Design a logo, brochure, cover letter, visiting cards In Photoshop. 2. Image editing & colour correction into color In Photoshop 3. Prepare a cutout of some images using Photoshop. 4. Design creative using Photoshop. 5. Design Ad, movie poster, brochures, leaflet 6. Photo retouching in Photoshop 7. Digital painting. in Photoshop 8. Matte painting in Photoshop 9. Textures using filters in Photoshop 10. Design a logo, brochure, cover letter, visiting cards using illustrator 11. Design creative using illustrator 12. Design Ad, movie poster, brochures, leaflet using illustrator 13. 2D Animation elements design(props, BG, character, Storyboard, etc) using illustrator 	
Text Books:	1. Adobe Illustrator CS6 Bible by Steve Johnson.	
Reference Books:	<ol style="list-style-type: none"> 1. Adobe Illustrator CS6 Bible by Steve Johnson. 2. Teach Yourself Visually - Adobe Photoshop CS6 by Mike Wooldridge (Wiley publishing). 3. Adobe Photoshop CS6 Bible by Steve Johnson. 4. Adobe Photoshop CS6 Bible by Lisa Danae Dayley & Brad Dayley. 5. Adobe Illustrator CS6 Bible by Ted Alspach. 6. Adobe Photoshop CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press. * Latest editions of all the suggested books are recommended. <p>Online reference https://helpx.adobe.com/pdf/photoshop_reference.pdf https://helpx.adobe.com/in/illustrator/user-guide.html</p>	



Core Course – 7		
B.Sc. Animation- Semester-II		
Course Code: BSA 210	Idea generation and development	L-4 T-0 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding scripts storyboards.	
CO2.	Understanding Idea generation process and its sources.	
CO3.	Understanding the concept of story, storytelling ideas.	
CO4.	Applying the importance of storyboard and how to create by its types.	
CO5.	Creating a storyboard for the story	
Course Content:		
Unit-1:	Historic examples of how great ideas in history were conceived. Show / tell / play with different methods of idea generation. Identifying problems, Lists, Sketching, Mind maps, Storyboards example, understanding visuals	8 Hours
Unit-2:	Storytelling, Different techniques of idea generation (clustering, free writing, inspiration from book, real life story, paragraphs, back story, e.t.c),Idea generation for film, advertisement, computer games. Case studies.	8 Hours
Unit-3:	Story writing,3, Act structure of story, Plot, Climax, conflicts, types of conflict. Sources of story line, writing the story line from classical animation. Story, elements of story, expansion, dialogues, Interaction through dialogue, script and its elements, theme & genre of script.	8 Hours
Unit-4:	STORY BOARD: Importance of story board, definition, advantage, different types of story boards, paper storyboard and screen storyboard, digital story boards, Format of story board designing story boards. Types of story-boards: Linear story board, non-linear storyboard, Hierarchical storyboard, graphical storyboard and hand drawn story board.	8 Hours
Unit-5:	PROJECT- Developing an story, script and creative a story-board .	8 Hours
Text Books:	1. The Complete Book of Scriptwriting By-J. Michael Straszynski 2. Film Scriptwriting-A practical Mannual By-Dwhite V. Swain and Joye R. Swain 3. Screenplay: Foundation of Screenwriting By-Syd Field	
Online References:	1. https://industrialscripts.com/script-ideas/ 2. https://writeandco.com/fun-ways-get-screenplay-ideas/	



Core Course – 8		
B.Sc. Animation- Semester-II		
Course Code: BSA 211	Concepts of 2D Animation and Techniques	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the production pipeline for 2D animation	
CO2.	Understanding the workspace, of Adobe Flash.	
CO3.	Understanding the basic concepts of drawing tools available in Adobe Flash.	
CO4.	Applying the various types of symbols and their uses.	
CO5.	Applying the advanced concepts of animation tools available in Adobe Flash.	
CO6.	Applying the basic concepts of Action Script, Buttons and Control over their Flash contents with scripts.	
Course Content:		
Unit-1:	An introduction to 2D animation and its production pipe line, various phases of 2D production pipeline (pre production, production and post-production), 2D, Character designing, props, kind of characters, assets of character, creating a model chart for a character, background and layouts, break down a scene in to layers as per need. Visual story boards, Frame by frame animation, straight forward animation, Key framing, in-between, tweening animation	6 Hours
Unit-2:	Flash workflow & Workspace, Introduction to flash, Workspace overview, Customize the workshop Using the stage and tools panel, About the timeline, Using Flash panels, Property inspector Library panel, Movie explorer, History panel, Color panel, Working with Flash documents: About flash files, Create or open a document and set its properties, View a document when multiple documents are open. Working with project, importing art work into flash.	8 Hours
Unit-3:	Adding media to library, Work with libraries and its items, working with timeline, working with scenes, Find and replace command, about templates, Drawing Basics: About vector and bitmap graphics, Flash drawing module, about overlapping shapes, Using flash drawing and painting tools: Draw with pencil tools, draw straight lines, Reshaping lines and shape outlines, snapping object, snapping, pixel snapping and snap alignment, working with color, strokes and fills.	8 Hours
Unit-4:	Working with graphic objects: Selection objects, moving, copying and deleting objects, Arranging objects (Stack, Align, group, Break apart groups and objects) and Transforming object, Using symbols, instances and library assets: Symbols overview, Types of symbols, Create symbols, Convert animation on the stage into a movie clip, Duplicate symbols, Edit symbols.	8 Hours
Unit-5:	Creating animation: Animation basics, creating motion, creating key frames, Representations of animation in the timeline, Frame rates, Frame by frame animation, Onion skinning, Extend still images, Mask layers. USING timeline effects, Twinned Animation, Special effects, Filters and animation of filters, filter libraries, working with text, working with Sound, Working with video.	6 Hours
Unit-6:	Interactivity in Adobe Flash, Buttons and their use, use movie clips with button, introduction to action script 2 and 3, timeline control, using small scripts for limited interactivity. Preparing a self portfolio using Adobe-Flash. Rendering in Adobe flash, video formats and video export, creating effects in flash, sound synchronization,	8 Hours



	compositing of shot and scenes in Adobe Premiere, adding title and credits, Final rendering and publishing on line and on CD.	
<u>Text Books:</u>	1. Adobe Flash Professional CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.	
<u>Reference Books:</u>	<p>1. Flash character animation: applied studio techniques By Lee Purcell (Sams publishing). 2. Adobe Flash Catalyst CS6 Classroom in a Book (Author: Adobe Creative Team).</p> <p>* Latest editions of all the suggested books are recommended.</p> <p><u>Online References:</u> https://help.adobe.com/archive/en/flash/cs6/flash_reference.pdf</p>	



Course Code: BSA 212	Core Course – 9 B.Sc. Animation- Semester-II Concepts of Cinematography & Photography	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the history and technical evolution of Professional cameras.	
CO2.	Understanding the component of camera's and functionalities	
CO3.	Understanding the rules of composition for photography and functionalities of video camera and setting up the accessories in cinematography.	
CO4.	Applying the techniques of lighting and application of tripods and other camera accessories to capture a good composition in cinematography & Photography	
CO5.	Applying the rules for camera movement ,shots and angle to create a perfect video shot Painting	
CO6.	Creating a short film /documentary using cinematography rules and techniques.	
Course Content:		
Unit-1:	History of camera , camera obscura, parts of camera, analog and digital cameras, pixel, raster and vector, resolution, functions of camera, viewfinder. SLR, DSLR cameras, Focus, aperture, white balance, Depth of Field, shutter speed, ISO, exposure, F-Stops.	8 Hours
Unit-2:	Lenses, Type of lenses(prime, zoom ,micro), Focal length, camera settings, setting white balance, sunny 16 rule, metering , tripod , speed light, reflectors. Camera equipments, types of photography (wedding, wild, portrait, street, architecture, product	8 Hours
Unit-3:	Introduction to cinematography, video camera, functions of video camera, setting up equipment and camera, handling video camera, health and safety, camera crew.	8 Hours
Unit-4:	Camera moves, types of shots(extreme long shot, long shot, medium shot ,medium close up shot, close up shot) and angles (low angle, high angle, tilt POV, Birds eye view).180 degree rule	8Hours
Unit-5:	Basic acting activity, understanding scene and shot, Cinematography lighting, low key and high key lighting, 3 point lighting system, lighting filters, project short film.	8 Hours
Text Books:	1. 1. The Elements of Photography, Belt, Angela Faris,Focal Press	
Reference Books:	1. ASMP Professional Business Practices in Photography, Carr, Susan, Allworth Press 2. Photography FAQs: Portraits, Evans, Duncan, AVA Book 3. Photoshop CS6 in Simple Steps, Kogent Learning Solutions Inc., Dreamtech Press 4. Basic Photography: Post Production Black & White, Macleod, Steve, AVA Book * Latest editions of all the suggested books are recommended. Online References: https://www.studiobinder.com/blog/cinematography-techniques-no-film-school/ http://vision.cse.psu.edu/courses/CompPhoto/PhotoIntro.pdf	



Course Code: BSA 257	Core Course – 10 B.Sc. Animation- Semester-II Audio & Video-Editing -LAB	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Analyzing the video editing software & edit videos for movie / presentation	
CO2.	Analyzing the process of sound recording & cleaning noise in Adobe audition	
CO3.	Applying the editing techniques to the video in Adobe premiere	
CO4.	Applying the of special effect on audio in Adobe Audition.	
CO5.	Applying the basic of special effects and video transition on video in Adobe Premiere.	
	<ul style="list-style-type: none"> • Overview of editing, Linear and non linear editing, Concept of non linear editing, • Adobe premiere Interface, the basics of editing: Creating Rough cut edit • Overview, Importing and Exporting: various audio, video and graphics in various formats, Edit, manipulate and arrange these elements in visual timeline, understand all Tools on toolbox for editing clips. Titling and superimposing, • Performing types of edit(ripple, trim, slip) and application of markers • Creating titles(all three types), • Applying transitions ,video effects and creating key frames • Performing color correction in the edited video. • Mixing song and creating film trailer. • Title animation using key frames. • Performing Multicam Editing. • Performing keying techniques on green screen, Blue screen • Creating News broadcasting Layouts(Lower third titles, Frames, Ticker , sting, transition, teaser) • Performing application of Audio transition , Track mixing using Mixer, Pitch shifter and reverb effects • Theory of audio, Interface of Adobe Audition, • Manipulating audio: Auto trim/crop, mute, reverse, smooth/enhance, Fade in/out, in Adobe audition • Sound recording and Perform noise reduction in Adobe Audition, • Exporting into multiple audio file formats like MP3, • Audio editing: workflow, cross fading audio tracks, balancing sound levels in Adobe Audition, • Understanding Multitrack audio workflow in Adobe audition, • Creating A documentary on based of above tools. 	
Text Books:	1. The Sound Effects Bible: How to Create and Record Hollywood Style Sound Effects. Author: Ric Viers (Michael Wiese Productions).	
Reference Books:	1. Film Editing: Great Cuts Every Filmmaker and Movie Lover Must. Know Author: Gael 2. Adobe Premiere Pro CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press. * Latest editions of all the suggested books are recommended. Online References: https://helpx.adobe.com/pdf/premiere_pro_reference.pdf	



Course Code: BSA 258	Core Course – 11 B.Sc. Animation- Semester-II 2D animation Project				L-0 T-0 P-4 C-2																														
Course Outcomes:	On completion of the course, the students will be :																																		
CO1.	Applying the production pipeline to create an animated Short film																																		
CO2.	Applying the production pipeline process into the project.																																		
CO3.	Applying the basic concepts of drawing tools available in Adobe Flash.																																		
CO4.	Applying the various types of 2D animation tool and techniques to create project																																		
CO5.	Creating animated video using various 2D animation tools.																																		
Course Content:																																			
Unit-1:	<p> Student will create and submit a short 2D Animation film individually or in group under the supervision of project guide. This project will be evaluated by a panel of internal faculty members as well as by external examiner. The evaluation scheme is as follow:- <u>INTERNAL EVALUATION-</u> </p> <table border="1" data-bbox="418 940 1386 1192"> <thead> <tr> <th>Attendance</th> <th>Presentation</th> <th>Concept and its execution</th> <th>Viva</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>10</td> <td>20</td> <td>10</td> <td>50</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p> <u>EXTERNAL EVALUATION-</u> </p> <table border="1" data-bbox="418 1304 1386 1556"> <thead> <tr> <th>File</th> <th>Presentation</th> <th>Concept and its execution</th> <th>Viva</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>10</td> <td>20</td> <td>10</td> <td>50</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Attendance	Presentation	Concept and its execution	Viva	Total	10	10	20	10	50						File	Presentation	Concept and its execution	Viva	Total	10	10	20	10	50						6 Hours
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Course Code: BSA 256	Core Course – 12 B.Sc. Animation- Semester-II Concepts of Cinematography & Photography (LAB)	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Applying the techniques of lighting in photography and cinematography	
CO2.	Applying the application of tripods and other camera accessories to capture a good composition	
CO3.	Applying the rules for camera movement ,shots and angle to create a perfect video shot Painting	
CO4.	Creating a Photo album various techniques and types of photography.	
CO5.	Creating a short film /documentary using cinematography rules and techniques.	
Experiments	<ul style="list-style-type: none"> • Setting up camera and equipment • Photography using focus, aperture, white balance, ISO, exposure. • Photography using composition rules • Types of photography exercise • Setting up video camera & equipments, Exercise on camera moves and angles, exercise on cinematography rules. • Project work on short films. 	
Text Books:	1. 1. The Elements of Photography, Belt, Angela Faris,Focal Press	
Reference book	2. ASMP Professional Business Practices in Photography, Carr, Susan, Allworth Press 3. Photography FAQs: Portraits, Evans, Duncan, AVA Book 4. Photoshop CS6 in Simple Steps, Kogent Learning Solutions Inc., Dreamtech Press 5. Basic Photography: Post Production Black & White, Macleod, Steve, AVA Book * Latest editions of all the suggested books are recommended. Online References: https://www.youtube.com/watch?v=9srSStavb8g https://www.youtube.com/watch?v=N1gNaCXDTaQ https://www.smashingmagazine.com/2009/04/the-ultimate-photography-round-up/	



Course Code: TMUGE201	AECC-2 B.Sc. Animation- Semester-II English Communication – II	L-2 T-0 P-2 C-3
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Acquire competence in constructing short sentences dealing day to day activities with grammatical accuracy.	
CO2.	Acquire adequate knowledge of grammar and vocabulary to address competitive exams.	
CO3.	Improve their listening skills during conversation and speeches.	
CO4.	Write official letters and emails in correct format on common issues.	
CO5.	Develop a paragraph on given topics.	
CO6.	Improvise their voice modulation while reading and speaking something.	
CO7.	Attain proficiency in oral presentation.	
CO8.	Comprehend, analyse and enrich their vocabulary through prescribed text.	
Course Content:		
Unit-1:	Functional Grammar Prefix, suffix and One words substitution Modals Concord	10 Hours
Unit-2:	Listening Skills Difference between listening & hearing, Process and Types of Listening Importance and Barriers to listening	4 Hours
Unit-3:	Writing Skills Official letter and email writing Essentials of a paragraph,	12 Hours



	Developing a paragraph: Structure and methods Paragraph writing (100-120 words)	
Unit-4:	Strategies & Structure of Oral Presentation Purpose, Organizing content, Audience & Locale, Audio-visual aids, Body language Voice dynamics: Five P's - Pace, Power, Pronunciation, Pause, and Pitch. Modes of speech delivery and 5 W's of presentation	8 Hours
Unit-5:	Value based text reading: Short Essay (Non- detailed study) How should one Read a book? – Virginia Woolf	6 Hours
<u>Text Books:</u>	1. Singh R.P., An Anthology of English Essay, O.U.P. New Delhi.	
<u>Reference Books:</u>	1. Nesfield J.C. "English Grammar Composition & Usage" Macmillan Publishers 2. Sood Madan "The Business letters" Goodwill Publishing House, New Delhi 3. Kumar Sanjay & Pushplata "Communication Skills" Oxford University Press, New Delhi. * Latest editions of all the suggested books are recommended.	
<u>Methodologies:</u>	1. Words and exercises, usage in sentences. 2. Language Lab software. 3. Sentence construction on daily activities and conversations. 4. Format and layout to be taught with the help of samples and preparing letters on different subjects. 5. JAM sessions and Picture presentation. 6. Tongue twisters, Newspaper reading and short movies. 7. Modern Teaching tools (PPT Presentation, Tongue-Twisters & Motivational videos with sub-titles) will be utilized. Text reading : discussion in detail, critical appreciation by reading the text to develop students' reading habits with voice modulation.	

Note:

□ Class (above 30 students) will be divided in to two groups for effective teaching.
For effective conversation practice, groups will be changed weekly.



Evaluation Scheme

Internal Evaluation			External Evaluation		Total Marks
40 Marks			60 Marks		100
20 Marks (Best 2 out of Three CTs) (From Unit- I, II & V)	10 Marks (Oral Assignments) (From Unit- II & V)	10 Marks (Attendance)	40 Marks (External Written Examination) (From Unit- I, II & V)	20 Marks (External Viva)* (From Unit- II & IV)	

*Parameters of External Viva

Content	Body Language	Communication skills	Confidence	TOTAL
05 Marks	05 Marks	05 Marks	05 Marks	20 Marks

Note: External Viva will be conducted by 2-member committee comprising

- a) One Faculty teaching the class
- b) One examiner nominated by University Examination cell.

Each member will evaluate on a scale of 20 marks and the average of two would be the 20 marks obtained by the students.



Course Code: BSA 309	Core Course – 13 B.Sc. Animation- Semester-III Basics of motion graphics & FX (After Effect)	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the basics of motion graphics	
CO2.	Understanding the basic of special effects using Adobe after effects.	
CO3.	Understanding the basic of advance visual effects using Adobe after effects.	
CO4.	Applying the process of VFX in Adobe After effects.	
CO5.	Applying the VFX techniques in Adobe After effects.	
CO6.	Applying the effects in Adobe After effects	
Course Content:		
Unit-1:	An introduction to motion graphics, Pal and NTSC formats, Frame rate, Adobe After effect interface, Panels ,composition, composition setting, nested composition, pre composition, preferences, importing files, transform properties, key farming, basic animation using transform properties, motion blur, interpolation, graph ,blending modes .	8 Hours
Unit-2:	Case study of motion graphics video, Text tool, Parenting, Masking, types of masking tool, stroke application of masking, creation of motion graphics video(explainer video), Introduction to rotoscoping, rotoscoping exercise, stereoscopic rotoscoping workflow, paint , wire removal techniques using paint.	8 Hours
Unit-3:	Introduction to keying, types of keying tool, shooting practice of chroma , application of keying tool , light wrap and merging with BG, Luma key, shadow extraction , Tracking , 2D tracking in after effect, types of tracking, Application of tracking, Stabilization. Color correction tools, color correction exercise. Set extension exercise.	8 Hours
Unit-4:	Introduction to Camera, 3D layers, Light layers, application of camera and light layers, Animation of matte painting arranging in 3D space, Filters, transition, application of filters and transition, sequencing layers, Particles, canon and grid, layer explode, application of particles, Particle world, shatter effect,	8Hours
Unit-5:	Understanding layer passes , Compositing layer passes, exercise on layer pass compositing, introduction to scripting , Application and exercise based on scripting, creating project using all above the tools in after effect. Advanced effects.	8 Hours
Text Books:	1. Flash + after effects by Chris Jackson (Focal press publication).	
Reference Books:	1. Adobe After Effects CS6 Digital Classroom Book by Jerron Smit. * Latest editions of all the suggested books are recommended. Online References: https://helpx.adobe.com/pdf/after_effects_reference.pdf	



Core Course – 14		
B.Sc. Animation- Semester-III		
<u>Course Code:</u> BSA 310	Fundamental of 3D, concepts of modeling & texturing	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the interface and come to know about various tools available in Maya.	
CO2.	Understanding modeling with Maya.	
CO3.	Aanalyzing the Autodesk Maya files in other 3D software.	
CO4.	Applying the modeling techniques using the Autodesk Maya.	
CO5.	Creating model characters and objects in 3D for animation and Graphics.	
Course Content:		
Unit-1:	Introduction to the interface of Maya, Menu bar, Tool bar, hot box, The channel box, Using the shelf, hot keys, Hot keys, manipulating a view. Creating objects: Simple primitives, Cameras. Selecting objects, types of selection, Single selection, adding and subtracting selection. Edit menu selection options, Marquee selection, Lasso selection, hyper shade, Relationship editor, hyper graph and outliner.	8 Hours
Unit-2:	Duplicating objects, Pivot points, Introduction to snapping, Types of Snapping, Layer Editors, Introduction to Maya Shaders, Introduction to Polygon modeling, Poly modeling tools, NURBS modeling, Nurbs and surface Modeling tools, Modeling Props and sets (Locations), Creating backgrounds, interiors, exteriors etc.	8 Hours
Unit-3:	Modeling a high poly model, Technical issues related to managing high poly model. Modeling different part of Human and Animal bodies, Modeling the character using templates & view port references, Optimizing the final model, refining the mesh, basic posture, testing the model, Difference between hi-poly & low-poly characters.	8 Hours
Unit-4:	Introduction to basic material types & Procedurals. Study of concepts: Opacity, Smoothness, Secularity and color, Working with Transparency, Reflection & Refraction, Introducing 3D Maps. Introduction to unwrapping, Unwrapping the maps for various 3d characters. Working With 2D and 3D Texture, create texture and pattern in Photoshop. Introducing 3D maps.	8Hours
Unit-5:	Introduction about the lighting & it's properties, object base lighting, connection between object and light. Rendering engine, Rendering with software, Maya hardware, Rendering settings according to Rendering engine. Introduce rendering passes.	8 Hours
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. *Latest editions of all the suggested books are recommended. Online reference: https://static.sdcpublishations.com/pdftoc/978-1-63057-178-8_toc.pdf	



Course Code: BSA 311	Core Course – 15 B.Sc. Animation- Semester-III Experimental Animation	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding about basic principles of animation.	
CO2.	Understanding the various processes and technologies used in creation of Animations.	
CO3.	Understanding the various drawing techniques used in classical animation.	
CO4.	Applying stop motion and non conventional techniques to create short animations.	
CO5.	Applying the various processes and technologies used in creation of Animations to create experimental animation.	
Course Content:		
Unit-1:	Introduction to animation principal(12 basic principal), creating story board, creating animatics based on the story boards . Understanding different types of Experimental animation. Case studies.	8 Hours
Unit-2:	Introduction to stop motion techniques. Equipment settings for stop motion, Animation using stop motion techniques(using products, using paper cut outs, using, chalk, etc).clay modeling , Stop motion using clay models.	8 Hours
Unit-3:	Filpbook, frame by frame animation. keyframe animation, Classical animation techniques, Animation drawings, Sand art and Sand animation.	8 Hours
Unit-4:	The exquisite corpse, surrealism and film, Miniature models, process to creating miniature models, Mixing CG shot with miniature for animation, CG shot using vfx (after effect, or fusion)software based on miniature.	8Hours
Unit-5:	Introduction to motion capture, motion capture using motion tracking tools, introduction to Rotoscopy. Rotoscopy using After effect software.	8 Hours
Text Books:	1-Survival kit for animators -Sir Willium Richards	
Reference Books:	1. The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White. 2.Stop Motion: Craft Skills for Model Animation by Susannah Shaw (Focal Press) 3.The ADVANCED Art of Stop-Motion Animation by Ken A. Priebe (Course Technology) 4.From pencil to pixel by Tony White 5.Animation process by Persten Blair. *Latest editions of all the suggested books are recommended. Online references: http://graphics.cs.cmu.edu/nsp/course/15464-s15/www/lectures/lec02.pdf	



Course Code: TMUGE 301	SEC-1 B.Sc. Animation- Semester-III English Communication_III	L-2 T-0 P-2 C-3
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Remembering and understanding the English grammar and vocabulary.	
CO2.	Understanding the art of public speaking and strategies of reading comprehension.	
CO3.	Applying correct vocabulary and sentence construction during public speaking or professional writing.	
CO4.	Analyzing different types of sentences like simple, compound and complex.	
CO5.	Drafting notice, agenda and minutes of the meeting. Demonstrating speaking skills during common conversation and power point presentation.	
Course Content:		
Unit-1:	<p>Course Contents:</p> <p>English Grammar & Vocabulary</p> <ul style="list-style-type: none"> □ Correction of Common Errors (with recap of English Grammar with its usage in practical context.) □ Synthesis : Simple , complex and compound sentence □ Commonly used Idioms & phrases (Progressive learning whole semester) 	8 Hours
Unit-2:	<p><i>Speaking Skills</i></p> <ul style="list-style-type: none"> □ Art of public speaking □ Common conversation □ Extempore □ Power Point Presentation (PPT) Skills: Nuances of presenting PPTs 	8 Hours
Unit-3:	<p><i>Comprehension Skills</i></p> <ul style="list-style-type: none"> □ Strategies of Reading comprehension: Four S's □ How to solve a Comprehension (Short unseen passage: 150-200 words) 	8 Hours
Unit-4:	<p><i>Professional Writing</i></p> <ul style="list-style-type: none"> □ Preparing Notice, Agenda & Minutes of the Meeting 	8Hours
Unit-5:	<p>Value based text reading: Short story</p> <ul style="list-style-type: none"> □ The Barber's Trade Union – Mulk Raj Anand 	8 Hours
Text Books:	1. Singh R.P., An Anthology of Short stories, O.U.P. New Delhi.	
Reference Books:	<ol style="list-style-type: none"> 1. Allen, W. "Living English Structure" Pearson Education, New Delhi. 2. Joseph, Dr C.J. & Myall E.G. "A Comprehensive Grammar of Current English" Inter University Press, Delhi 3. Wren & Martin "High School English Grammar and Composition" 	



	<p>S.Chand&Co.Ltd., New Delhi.</p> <p>4. Norman Lewis “<i>Word Power Made Easy</i>” Goyal Publications & Distributers, New Delhi.</p> <p>5. Chaudhary, Sarla “Basic Concept of Professional Communication” Dhanpat Rai Publication, New Delhi.</p> <p>6. Kumar Sanjay & Pushplata “<i>Communication Skills</i>” Oxford University Press, New Delhi.</p> <p>7. Agrawal, Malti “<i>Professional Communication</i>” KrishanaPrakashan Media (P) Ltd. Meerut.</p> <p>*Latest editions of all the suggested books are recommended.</p>
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Methodologies:

1. Idiom & Phrases and exercises, usage in sentences.
2. Language Lab software.
3. **Power Point presentation.**
4. Newspaper reading, short articles from newspaper to comprehend and short movies.
5. Modern Teaching tools (PPT Presentation & Motivational videos with sub-titles) will be utilized.
6. **Text reading : discussion in detail, Critical appreciation by reading the text to develop students’ reading habits with voice modulation.**

Note:

- Class (above 30 students) will be divided in to two groups for effective teaching.
- **For effective conversation practice, groups will be changed weekly.**

Evaluation Scheme

Internal Evaluation			External Evaluation		Total Marks
40 Marks			60 Marks		100
20 Marks (Best 2 out of Three CTs) (From Unit- I, III, IV & V)	10 Marks (Oral Assignments) (Unit –II)	10 Marks (Attendance)	40 Marks (External Written Examination) (From Unit- I, III, I V & V)	20 Marks (External Viva)* (Unit –II)	

***Parameters of External Viva**

Content	Body Language	Communication skills	Confidence	TOTAL
05 Marks	05 Marks	05 Marks	05 Marks	20 Marks



Note: External Viva will be conducted by 2-member committee comprising

- a) One Faculty teaching the class
- b) One examiner nominated by University Examination cell.

Each member will evaluate on a scale of 20 marks and the average of two would be the 20 marks obtained by the students.



Course Code: BSA 356	Core Course – 16 B.Sc. Animation- Semester-III Fundamentals of 3D & Concepts of modeling and texturing-Lab	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Analyzing the interface and come to know about various tools available in Maya.	
CO2.	Analyzing modeling with Maya.	
CO3.	Analyzing the Autodesk Maya files in other 3D software.	
CO4.	Applying the modeling techniques using the Autodesk Maya.	
CO5.	Creating model characters and objects in 3D for animation and Graphics.	
Course Content:		
Experiments:	<ul style="list-style-type: none"> • Model some objects such as chairs, tables, fruits, utensils, instruments, tools, cars, bikes, aeroplane, etc. • Model male and female characters. • Model 4 leg characters • Inorganic modeling • Props modeling • Product modeling • Texture using unwrap • Application of hyper shades. • Lighting a table lap. • Rendering the scene 	
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. *Latest editions of all the suggested books are recommended. Online reference: https://static.sdcpublishations.com/pdftoc/978-1-63057-178-8_toc.pdf	



Course Code: BSA 357	Core Course – 17 B.Sc. Animation- Semester-III Basics of motion graphics & FX (After Effect)-LAB	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Analyzing the basics of motion graphics	
CO2.	Analyzing the basic of special effects using Adobe after effects.	
CO3.	Applying the basics of advance visual effects using Adobe after effects.	
CO4.	Applying the process of VFX in Adobe After effects.	
CO5.	Applying the VFX techniques in Adobe After effects.	
CO6.	Creating the effects in Adobe After effects.	
Course Content:		
Experiments	<ul style="list-style-type: none"> • Making Basic animation using keyframe • Creating Basic motion graphics video • Creating rotoscopy video • Creating explainer video • Creating cinematic effects • Creting chroma video • Creating tracking video • Creating a set extension using keying , tracking, stabilization , etc • Creating SFX using particle and filters, compositing layer passes. 	
Text Books:	2. Flash + after effects by Chris Jackson (Focal press publication).	
Reference Books:	1. Adobe After Effects CS6 Digital Classroom Book by Jerron Smit. 2. Creating Motion Graphics with After Effects by Chris Meyer and Trish Meyer * Latest editions of all the suggested books are recommended. Online References: https://helpx.adobe.com/pdf/after_effects_reference.pdf	



Course Code: BSA 358	Core Course – 18 B.Sc. Animation- Semester-III Experimental Animation	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding about basic principles of animation.	
CO2.	Understanding the various processes and technologies used in creation of Animations.	
CO3.	Understanding the various drawing techniques used in classical animation.	
CO4.	Applying stop motion and non conventional techniques to create short animations.	
CO5.	Applying the various processes and technologies used in creation of Animations to create experimental animation.	
Course Content:		
Experiments:	<ul style="list-style-type: none"> • Creating Animatics • Creating stop motion • Creating Clay animation • Creating frame based animation • Creating CG shot with miniature • Creating a motion capture shot • Creating Flipbook animation • Creating rotoscoping shot 	
Text Books:	1-Survival kit for animators -Sir Willium Richards	
Reference Books:	1. The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White. 2.Stop Motion: Craft Skills for Model Animation by Susannah Shaw (Focal Press) 3.The ADVANCED Art of Stop-Motion Animation by Ken A. Priebe (Course Technology) 4.From pencil to pixel by Tony White 5.Animation process by Persten Blair. *Latest editions of all the suggested books are recommended. Online references: http://graphics.cs.cmu.edu/nsp/course/15464-s15/www/lectures/lec02.pdf	



Course Code: BSA 359	AECC-3 B.Sc. Animation- Semester-III Entrepreneurship	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the knowledge and skills needed to run a business successfully	
CO2.	Understanding the factors and skills needed to Influencing an Entrepreneur.	
CO3.	Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society	
CO4.	Applying the knowledge and skills of financing and accounting	
CO5.	Applying the different government policies to run a business successfully	
Course Content:		
Unit-1:	Entrepreneurship: Entrepreneur – Types of Entrepreneurs – Difference between Entrepreneur and Entrepreneur in Economic Growth, Factors Affecting Entrepreneurial Growth. Motivation: Major Motives Influencing an Entrepreneur – Achievement Motivation Training, Self-Rating, Business Games, Thematic Apperception Test – Stress Management, Entrepreneurship Development Programs – Need, Objectives.	8 Hours
Unit-2:	Business: Small Enterprises – Definition, Classification – Characteristics, Ownership Structures – Project Formulation – Steps involved in setting up a Business – identifying, selecting a Good Business opportunity, Market Survey and Research, Techno Economic Feasibility Assessment – Preparation of Preliminary Project Reports – Project Appraisal – Sources of Information – Classification of Needs and Agencies	8 Hours
Unit-3:	Financing and Accounting: Need – Sources of Finance, Term Loans, Capital Structure, Financial Institution, Management of working Capital, Costing, Break Even Analysis, Taxation – Income Tax, Excise Duty – Sales Tax.	8 Hours
Unit-4:	Understanding Harmony in the Human Being – Harmony in Myself! , Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’ , Understanding the needs of Self (‘I’) and ‘Body’ - Sukh and Suvidha ., Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer) , Understanding the characteristics and activities of ‘I’ and harmony in ‘I’ , Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail 12. Programs to ensure	8Hours



	Sanyam and Swasthya	
Unit-5:	<p>Professional Ethics : Implications of the above Holistic Understanding of Harmony on Professional Ethics , Natural acceptance of human values ,Definitiveness of Ethical Human Conduct ,Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order , Competence in professional ethics:</p> <p>a. Ability to utilize the professional competence for augmenting universal human order</p> <p>b. Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems,</p> <p>c. Ability to identify and develop appropriate technologies and management patterns for above production systems.</p>	8 Hours
Text Books:	<ol style="list-style-type: none"> 1. Khanka. S.S., “Entrepreneurial Development” S. Chand & Co. Ltd., Ram Nagar, New Delhi. 	
Reference Books:	<ol style="list-style-type: none"> 1. Hisrich R D, Peters M P, “Entrepreneurship” 8th Edition, Tata McGraw-Hill. 2. Mathew J Manimala, “Entrepreneurship theory at cross roads: paradigms and praxis” 2nd Edition Dream tech. 3. Rajeev Roy, ‘Entrepreneurship’, Oxford University Press. 4. EDII “Faulty and External Experts – A Hand Book for New Entrepreneurs Publishers: Entrepreneurship Development”, Institute of India, Ahmadabad. 5. B L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008. 6. . PL Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Purblishers. 7. . Sussan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991 <p>*Latest editions of all the suggested books are recommended.</p> <p>Online Reference: https://www.cmu.edu/swartz-center-for-entrepreneurship/education-and-resources/project-olympus/pdf/entrepreneurship-101.pdf</p>	



Course Code: TMUGS-301	VAC-1 B.Sc. Animation- Semester-III Managing Self (CTLD)	L-2 T-1 P-0 C-0
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Utilizing effective verbal and non-verbal communication techniques in formal and informal settings	
CO2.	Understanding and analyzing self and devising a strategy for self growth and development.	
CO3.	Adapting a positive mindset conducive for growth through optimism and constructive thinking.	
CO4.	Utilizing time in the most effective manner and avoiding procrastination.	
CO5.	Making appropriate and responsible decisions through various techniques like SWOT, Simulation and Decision Tree.	
CO6.	Formulating strategies of avoiding time wasters and preparing to-do list to manage priorities and achieve SMART goals.	
Course Content:		
Unit-1:	Unit – I Personal Development Personal growth and improvement in personality Perception Positive attitude Values and Morals High self motivation and confidence Grooming	10 Hours
Unit-2:	Professional Development Goal setting and action planning Effective and assertive communication Decision making Time management Presentation Skills Happiness, risk taking and facing unknown	8 Hours



Unit-3:	<p>Career Development</p> <p>Resume Building Occupational Research Group discussion (GD) and Personal Interviews</p>	12Hours
Evaluation Scheme: Faculty led Continuous Evaluation	<ul style="list-style-type: none"> • Evaluation of “Managing Self” and “Managing Work and Others” will follow the continuous evaluation method. • Students will be evaluated on the score of 100 on the pattern prescribed by the University for Conduction of Practical Courses. <p>a) Internal: 50 marks for Internal evaluation following the continuous evaluation method, which includes:</p> <ol style="list-style-type: none"> a. 40 marks for Class Performance (Every class activity will carry 8 marks; each students can participate in maximum of 5 activities) b. 10 marks for Attendance and involvement in the activities <p>b) External: 50 marks for External evaluation at the time of external exams (Based on Observations, GDs and PIs and other assessment tools).</p>	
Reference Books:	<ul style="list-style-type: none"> • Robbins, Stephen P., Judge, Timothy A., Vohra, Neharika, Organizational Behaviour (2018), 18th ed., Pearson Education • Tracy, Brian, Time Management (2018), Manjul Publishing House • Hill, Napoleon, Think and grow rich (2014), Amazing Reads • Scott, S.J., SMART goals made simple (2014), Createspace Independent Pub • https://www.hloom.com/resumes/creative-templates/ • https://www.mbauniverse.com/group-discussion/topic.php • Rathgeber, Holger, Kotter, John, Our Iceberg is melting (2017), Macmillan • Burne, Eric, Games People Play (2010), Penguin UK • https://www.indeed.com/career-advice/interviewing/job-interview-tips-how-to-make-a-great-impression <p>*Latest editions of all the suggested books are recommended.</p>	



Course Code: BSA 408	Core Course – 19 B.Sc. Animation- Semester-IV Concepts of Lighting & shading with Maya	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the different kinds of lights and light setup in a Maya scene.	
CO2.	Understanding the use of lights and to set their attributes more precisely.	
CO3.	Understanding about how to get final output of their scene using various rendering techniques.	
CO4.	Applying Various techniques like shadows and Fog in Maya lighting system.	
CO5.	Applying various rendering techniques of Maya lighting to achieve desired output.	
Course Content:		
Unit-1:	Introduction to CG Lighting, Working with Maya Lights 1-Point, Direct, Spot, Working with Maya Lights 2-Ambient, Area and Volume, Direct Illumination-Creating and Illuminating a Stage Show, Three Point Lighting and Exterior Lighting,	8 Hours
Unit-2:	Cast shadows, decay rate, Previewing lighting and shadows Creating depth map Shadow, creating ray traced shadows, Concept of lighting system and shadows, Creating area light shadows, setting area light visibility,	8 Hours
Unit-3:	Creating soft shadows with spot lights, Indirect lighting: Setting illumination for interiors, Tuning global illumination, Global illumination & photons settings.	8 Hours
Unit-4:	Rendering a still, rendering an AVI, Render setup options, Rendering an image sequence. introduction to Render layers:, creating, splitting a scene into render layers, Applying render layer presets, setting overrides, creating render layer composites, Introduction to Render Passes, compare render passes and render layers,	8Hours
Unit-5:	Render quality: anti aliasing, setting color profiles, diagnosing ray tracing, adjust motion blur. Creating fogs rendering fogs , Maya paint effects, paint effect library, paint effect brush setup, animating paint effects, rendering paint effects.	8 Hours
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. *Latest editions of all the suggested books are recommended. Online Reference: http://saintangelos.com/studentdesk/Download/Lighting_and_Rendering_in_Maya.pdf	



AECC – 4		
B.Sc. Animation- Semester-IV		
English Communication -IV		L-2 T-0 P-2 C-3
Course Code: TMUGE401		
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Remembering and understanding the English grammar and vocabulary.	
CO2.	Understanding the essentials of effective listening and speaking.	
CO3.	Understanding the corporate expectations and professional ethics.	
CO4.	Understanding the corporate expectations and professional ethics.	
CO5.	Analyzing different types of interviews.	
CO6.	Drafting resume, C.V. or cover letter.	
Course Content:		
Unit-1:	Vocabulary & Grammar <ul style="list-style-type: none"> <input type="checkbox"/> Homophones and Homonyms <input type="checkbox"/> Correction of Common Errors (with recap of English Grammar with its usage in practical context.) <input type="checkbox"/> Transformation of sentences 	12 Hours
Unit-2:	Essence of Effective listening & speaking <ul style="list-style-type: none"> <input type="checkbox"/> Listening short conversation/ recording (TED talks / Speeches by eminent personalities) Critical Review of these abovementioned <input type="checkbox"/> Impromptu 	5 Hours
Unit-3:	Professional Writing <ul style="list-style-type: none"> <input type="checkbox"/> Proposal: Significance, Types, Structure & AIDA <input type="checkbox"/> Report Writing: Significance, Types, Structure & Steps towards Report writing 	8 Hours
Unit-4:	Job Oriented Skills <ul style="list-style-type: none"> <input type="checkbox"/> Cover Letter <input type="checkbox"/> Preparing Resumè and Curriculum-Vitae <input type="checkbox"/> Interview: Types of Interview, Tips for preparing for Interview and Mock Interview <input type="checkbox"/> Corporate Expectation & Professional ethics: Skills expected in corporate world 	10 Hours
Unit-5:	Value based text reading: Short story <ul style="list-style-type: none"> • A Bookish Topic – R.K. Narayan 	5 Hours
Text Books:	1. Singh R.P., An Anthology of Short stories, O.U.P. New Delhi.	
Reference Books:	<ul style="list-style-type: none"> • Raman Meenakshi & Sharma Sangeeta, “Technical Communication-Principles & Practice” Oxford 	



	<p>University Press, New Delhi.</p> <ul style="list-style-type: none"> • Mohan K. & Sharma R.C., “Business Correspondence of Report Writing”, TMH, New Delhi. • Chaudhary, Sarla “Basic Concept of Professional Communication” Dhanpat Rai Publication, New Delhi. • Kumar Sanjay & Pushplata “Communication Skills” Oxford University Press, New Delhi. • Agrawal, Malti “Professional Communication” KrishanaPrakashan Media (P) Ltd. Meerut. <p>* Latest editions of all the suggested books are recommended.</p>	
<p><u>Methodologies:</u></p>	<ol style="list-style-type: none"> 1. The content will be conveyed through Real life situations, Pair Conversation, Group Talk and Class Discussion. 2. Language Lab software. 3. Sentence transformation on daily activities and conversations. 4. Conversational Practice will be effectively carried out by Face to Face & Via Media (Audio-Video Clips) 5. Modern Teaching tools (PPT Presentation & Motivational videos with sub-titles) will be utilized. 	
<p><u>Note</u></p>	<ul style="list-style-type: none"> • Class (above 30 students) will be divided in to two groups for effective teaching. • For effective conversation practice, groups will be changed weekly. 	



Evaluation Scheme

Internal Evaluation			External Evaluation		Total Marks
40 Marks			60 Marks		100
20 Marks (Best 2 out of Three CTs) <i>(From Unit – I, III, IV & V)</i>	10 Marks (Oral Assignments) <i>(From Unit – II & IV)</i>	10 Marks (Attendance)	40 Marks (External Written Examination) <i>(From Unit – I, III, IV & V)</i>	20 Marks (External Viva)* <i>(From Unit – II & IV)</i>	

*Parameters of External Viva

Content	Body Language	Communication skills	Confidence	TOTAL
05 Marks	05 Marks	05 Marks	05 Marks	20 Marks

Note: External Viva will be conducted by 2-member committee comprising

- a) One Faculty teaching the class
- b) One examiner nominated by University Examination cell.

Each member will evaluate on a scale of 20 marks and the average of two would be the 20 marks obtained by the students.



Course Code: BSA410	DSE – 1 (Elective-1) B.Sc. Animation- Semester-IV Semester – IV Concept of Game design	L-2 T-0 P-0 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the basic concepts of game designing.	
CO2.	Understanding the Planning and lay outing a game concept.	
CO3.	Understanding the knowledge about different game element and how to create using 3Ds MAX	
CO4.	Analyzing the Unity game engine and its functionality.	
CO5.	Applying concepts eg Game designing to create the stage of game.	
Course Content:		
Unit-1:	Introduction to game planning and production, production stage, game designing workflow, case study of games, types of 2D game and 3D game, Developing idea for game and creating story board. interface of 3D s max, Concept art for game props, background, Characters and other elements, Interface of 3DS max, Understanding the concept of four view ports, Aligning object in the each view port in X, Y, Z axis, Hot keys, User defined hot keys, Using the menus, Floating and docking. Command panel, customizing the interface.	8 Hours
Unit-2:	Using drag and drop feature, Introduction to different workspaces, "Geometry, Sub objects, Extruding, Welding, bridging etc, Recognizing the workspaces". Introduction to standard and extended primitives. "Introduction to creating complex objects with Standard and extended primitives. Understanding the spline tools. 2D tool in 3d Max. Introduction to poly-tools, Modeling with Editable poly. Introduction to modifiers and modifier gizmos, Familiarity with Modifiers like Bend, edit poly, X form, wave, lathe, symmetry, normal, shell, FFD (box), Mesh smooth, edit normals, edit path ,etc.	8 Hours
Unit-3:	Advanced 3DS Max, Modeling objects with lattice, loft, extrude etc, Introduction to texturing. Working with Diffuse, Opacity and Reflection, Basics of UV unwrapping, Creating texture maps. Bump and Displacement Mapping, advanced Texturing with 3D max. Game props production. Introduction to rendering, scan-line render, mental ray render, introduction to occlusions render, environment panel, fire environment panel, volume fog environment panel, file output and rendering effect, automatic exposure control.	8 Hours
Unit-4:	Introduction to lights, properties of lights, standard light, photometric light. Working with Omni, Spot, Target, Free light, light include and exclude tool, light lister. Introduction to the 3d elevators and walk through. Introduction to camera, types of camera, target camera and free camera. Common camera parameters, using transforms to aim a camera.	8 Hours
Unit-5:	Introduction to Unity and Game Engines, Building Game Worlds / Levels (Scenes) in Unity , Types of Assets (game objects), and Unity Asset Store ,importing props in game engine. Modifying and Creating your own Assets and Prefabs, The Player Character, Camera Views, and Movement Adding Components to Assets .	4 Hours
Text Books:	1. 3ds Max 2016 Bible by Kelly Murdock (John Wiley & Sons).	
Reference Books:	2. 3ds max a step by step approach by Kurt Wendt. 3. Unity 2018 Game Development in 24 Hours, Sams Teach Yourself. Book by Mike Geig 4. The Art of Game Design. Book by Jesse Schell * Latest editions of all the suggested books are recommended. Online References: https://help.autodesk.com/view/3DSMAX/2020/ENU/ http://index-of.es/Varios2/Beginning%20Game%20Development%20with%20Unity4.pdf	



Course Code: BSA411	DSE – 1 (Elective-2) B.Sc. Animation- Semester-IV Concepts of Architectural Design	L-2 T-0 P-0 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the basic concept of AutoCAD through it's tool, palettes and units.	
CO2.	Understanding the 3D construction technique, through it's primitives and co-ordinates.	
CO3.	Understanding the learn the architectural design	
CO4.	Understanding the learn the Architectural 3D Modeling.	
CO5.	Applying the add light, rendering and getting the final output, of the Modeled Architectural plan.	
CO6.	Applying the concepts of architecture to create a perfect architectural walkthrough.	
Course Content:		
Unit-1:	Introduction to Parts of the User Interface in AutoCAD, Interface Themes and Background Color, Tool Sets Palette, Command Line, Overview of Using the Command Line, Repeat and Cancel Commands, Cursors in the Drawing Area, UCS Icon, Viewport Label Menus, View Cube Tool, Coordinates Display, Model Space and Layouts, Status Bar. Layers Palette ,Properties Inspector, Starting a New Drawing, Specify Units and Unit Formats, Save a Drawing, Pan or Zoom a View, Draw, Scale, and Annotate in Model Space, Construction tool, line tool, Polyline, Rectangle tool etc. Dimension, Customize Startup, Group/ungroup, Menu Bar. Using rectangular 3D coordinates, the right-hand rule of drawing, displaying 3D views,	8 Hours
Unit-2:	Interface of 3DS max, Understanding the concept of four view ports, Aligning object in the each view port in X, Y, Z axis, Hot keys, User defined hot keys, Using the menus, Floating and docking. Command panel, customizing the interface. Using drag and drop feature, Introduction to different workspaces, "Geometry, Sub objects, Extruding, Welding, bridging etc, Recognizing the workspaces". Introduction to standard and extended primitives. "Introduction to creating complex objects with Standard and extended primitives. Understanding the spline tools. 2D tool in 3d Max.	8 Hours
Unit-3:	Introduction to poly-tools, Modeling with Editable poly. Introduction to modifiers and modifier gizmos, Familiarity with Modifiers like Bend, edit poly, X form, wave, lathe, symmetry, normal, shell, FFD (box), Mesh smooth, edit normals, edit path ,etc. Advanced 3DS Max, Modeling objects with lattice, loft, extrude, Modeling interior, exterior., Introduction to texturing. Working with Diffuse, Opacity and Reflection, Basics of UV unwrapping, Creating texture maps. Bump and Displacement Mapping, advanced Texturing with 3D max. Introduction to	8 Hours



	rendering, scan-line render, mental ray render, introduction to occlusions render, environment panel, fire environment panel, volume fog environment panel, file output and rendering effect, automatic exposure control.	
Unit-4:	Introduction to lights, properties of lights, standard light, photometric light. Working with Omni, Spot, Target, Free light, light include and exclude tool, light lister. Introduction to the 3d elevators and walk through. Introduction to camera, types of camera, target camera and free camera. Common camera parameters, using transforms to aim a camera.	8 Hours
Unit-5:	Understanding architectural walkthrough, case study, camera setup for walkthrough, camera animation in architectural scene for walkthrough, Project (architectural walk through).	4 Hours
<u>Text Books:</u>	<ol style="list-style-type: none"> 1. Mastering AutoCAD 2016 and AutoCAD LT 2016 by George Omura and Brian C. Benton 2. 3ds Max 2016 Bible by Kelly Murdock (John Wiley & Sons). 3. 3ds max a step by step approach by Kurt Wendt. 	
<u>Online Reference:</u>	<p>https://images.autodesk.com/adsk/files/autocad_aca_user_guide_english.pdf</p> <p>https://help.autodesk.com/view/3DSMAX/2020/ENU/</p> <p>.</p>	



Course Code: BSA412	AECC-4 B.Sc. Animation- Semester-IV Advance Digital Sculpting	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the concept of Z-brush, working with layout, palettes, canvas, etc.	
CO2.	Understanding to combination of Autodesk Maya or Autodesk 3ds max with Z-brush for a final output	
CO3.	Understanding to use various lighting, shadows and texturing technique.	
CO4.	Applying the mapping and skinning of the Z-brush Models.	
CO5.	Applying the brushes , render and final posing of characters	
Course Content:		
Unit-1:	canvas, working with layouts, working with layouts, working with palettes, Z-Brush configuration, using startup documents, tray modes, working with Z-Script palette and working with the preference palette.	8 Hours
Unit-2:	Types of tools in Z-Brush 4, modes, options and related palettes, explaining the tool palette, working with tools, working with pixel based tools, working with gyro tool, Autodesk Maya and Autodesk 3ds max settings, Introduction to Go-Z, introduction to curves, the alpha adjust curve, the edit curve, the smoothing curve, the diffuse curve, the specular curve, the trans curve, the reflect curve, the noise curve and the intensity curve.	8 Hours
Unit-3:	Strokes, lighting, shadows, transformation, working with alphas, texture concepts, texture inventory, understanding the texture palette, texture mapping, seamless textures, spot light texturing, painting textures and materials. Imm-plugins.	8 Hours
Unit-4:	Creates mesh visibility, morph target, multi-resolution modeling, edge loop, different maps, explain projection master, working with Z-Spheres, understanding adaptive skinning and understanding unified skinning.	8 Hours
Unit-5:	Sculpting, sculpting brushes, using stencils, sculpting using projection master, understanding and render palette and posing characters.	8 Hours
Text Books:	1-Introducing Z-Brush by-Eric Keller	
Reference Books:	2. Digital Sculpting Human anatomy By-Scott Spencer * Latest editions of all the suggested books are recommended. Online References: http://docs.pixologic.com/user-guide/	



Course Code: BSA 463	DSE – 2 (Elective-3) B.Sc. Animation- Semester-IV Concepts of Game design -LAB	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	understanding the basic concepts of game designing.	
CO2.	Analyzing the Planning and lay outing a game concept.	
CO3.	Applying the knowledge about different game element and how to create using 3Ds MAX	
CO4.	Applying the Unity game engine and its functionality.	
CO5.	Creating concepts eg Game designing to create the stage of game.	
Experiments:	<ul style="list-style-type: none"> • Developing Idea about Game and creating script , concept layout, props drawing. • Creating or props and game elements(BG, environments, etc) • Creating various textures by using material editor. • Importing models into unity game engine • Creating levels in the game engine • Props interaction into game engine. 	
Text Books:	1. 3ds Max 2016 Bible by Kelly Murdock (John Wiley & Sons).	
Reference Books:	1. 3ds max a step by step approach by Kurt Wendt. 2. Unity 2018 Game Development in 24 Hours, Sams Teach Yourself. Book by Mike Geig 3. The Art of Game Design. Book by Jesse Schell Online References: https://help.autodesk.com/view/3DSMAX/2020/ENU/ http://index-of.es/Varios2/Beginning%20Game%20Development%20with%20Unity4.pdf	



Course Code: BSA 464	DSE – 2 (Elective-4) B.Sc. Animation- Semester-IV Concepts of Architectural design –LAB	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the basic concept of AutoCAD through its tool, palettes and units.	
CO2.	Analyzing the 3D construction technique, through its primitives and co-ordinates.	
CO3.	Analyzing the learn the architectural design	
CO4.	Applying the learn the Architectural 3D Modeling.	
CO5.	Applying the add light, rendering and getting the final output, of the Modeled Architectural plan.	
CO6.	Creating the concepts of architecture to create a perfect architectural walkthrough.	
Experiments:	<ul style="list-style-type: none"> • Create a floor plan for a 1BHK house. duplex house and 2 BHK house • Develop floor plan using 3Ds max Molding and texturing tools • Create realistic interior and exterior implementing different 3D lighting techniques • Create A complete walkthrough of any one above mention floor plan using camera animation . • Make walkthrough housing society with its 3D work flow with texture and lights. 	
Text Books:	1. Mastering AutoCAD 2016 and AutoCAD LT 2016 by George Omura and Brian C. Benton	
Reference Books:	1. 3ds Max 2016 Bible by Kelly Murdock (John Wiley & Sons). 2. 3ds max a step by step approach by Kurt Wendt. Online References: https://images.autodesk.com/adsk/files/autocad_aca_user_guide_english.pdf https://help.autodesk.com/view/3DSMAX/2020/ENU/	



Course Code: BSA 460	SEC – 2 B.Sc. Animation- Semester-IV Advanced digital sculpting (LAB)	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Analyzing the concept of Z-brush, working with layout, palettes, canvas, etc.	
CO2.	Analyzing to combination of Autodesk Maya or Autodesk 3ds max with Z-brush for a final output	
CO3.	Applying to use various lighting, shadows and texturing technique.	
CO4.	Applying the mapping and skinning of the Z-brush Models.	
CO5.	Creating the brushes , render and final posing of characters	
Experiments:	<ul style="list-style-type: none"> • Concept designing with the help of dyna-mesh. • Creating base mesh with Z-sphere. • Modeling a high poly model. • Modeling with Z-brush • Z-brush with Max and other 3d soft-wares • Import an .obj file and add fine detailing, export various maps. 	
Text Books:	1-Introducing Z-Brush by-Eric Keller	
Reference Book:	1. Digital Sculpting Human anatomy By-Scott Spencer Online References: http://docs.pixologic.com/user-guide/	



Course Code: BSA 461	Core Course – 20 B.Sc. Animation- Semester-IV Concepts of Lighting & shading-with Maya -LAB	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the different kinds of lights and light setup in a Maya scene.	
CO2.	Analyzing the use of lights and to set their attributes more precisely.	
CO3.	Analyzing how to get final output of their scene using various rendering techniques.	
CO4.	Applying Various techniques like shadows and Fog in Maya lighting system.	
CO5.	Applying various rendering techniques of maya lighting to achieve desired output.	
CO6	Creating A lighting scene in MAYA	
	<ul style="list-style-type: none"> • Create a natural outdoor or indoor scene. • Create Opacity, Smoothness, Secularity, and color maps, Transparency, Reflection & • Refraction, and Bump & Displacement Maps • Apply basic material and shader types & Procedurals textures. • Set Lighting for the scene. • Set light for Day, Night and Morning • Create FOG nodes in your scene. • Render a frame and video of indoor and outdoor scenes. • Render a photorealistic output of an interior scene. • Render a natural scene show different time by varying lighting. • Advance lighting using mental ray render. • Animate day and night scene of a street with the help of lighting. 	
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. Online Reference: http://saintangelos.com/studentdesk/Download/Lighting_and_Rendering_in_Maya.pdf	



Course Code: BSA 462	AECC – 4 B.Sc. Animation- Semester-IV Project(3DModeling/Game design/Architectural design)	L-0 T-0 P-4 C-2																														
Course Outcomes:	On completion of the course, the students will be :																															
CO1.	Analyzing the 3D project pipeline.																															
CO2.	Analyzing the use of 3D and 2D software in Game design/Architectural design																															
CO3.	Applying Various techniques of 3D and 2D animation																															
CO4.	Applying various rendering techniques to achieve desired output.																															
CO5.	Creating A video based on Gaming/3D modelling/Architectural Design as final output																															
Details:	<p>Student will create and submit project on one 3DModeling/Game design/Architectural design individually or in group under the supervision of project guide. This project will be evaluated by a panel of internal faculty members as well as by external examiner. The evaluation scheme is as follow:-</p> <p><u>INTERNAL EVALUATION-</u></p> <table border="1" data-bbox="363 919 1403 1171"> <thead> <tr> <th>Attendance</th> <th>Presentation</th> <th>Concept and its execution</th> <th>Viva</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">10</td> <td style="text-align: center;">20</td> <td style="text-align: center;">10</td> <td style="text-align: center;">50</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p><u>EXTERNAL EVALUATION-</u></p> <table border="1" data-bbox="363 1283 1403 1535"> <thead> <tr> <th>File</th> <th>Presentation</th> <th>Concept and its execution</th> <th>Viva</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">10</td> <td style="text-align: center;">20</td> <td style="text-align: center;">10</td> <td style="text-align: center;">50</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		Attendance	Presentation	Concept and its execution	Viva	Total	10	10	20	10	50						File	Presentation	Concept and its execution	Viva	Total	10	10	20	10	50					
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Course Code: BSA 512	Core Course – 21 B.Sc. Animation- Semester-V Concepts of 3D Animation& Rigging with Maya	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the Rigging process in Maya, they are elaborated with creation of different kind of rigs for characters and objects.	
CO2.	Understanding the animation Maya, they practice to apply various animation principles and learn different tools for Animation in Maya.	
CO3.	Analyzing the various techniques of Animation in Maya.	
CO4.	Applying the various technique of rigging in Maya	
CO5.	Applying the various technique and tools.	
Course Content:		
Unit-1:	Introduction to bone system/Joints and IK handles, Creating bone system and maintaining naming conventions, Skinning types, import and export of skin weights, IK and FK basics, IK and FK switch,	8 Hours
Unit-2:	Introduction to Deformers, Introduction to constrains and implementation to rig. Maintaining proper hierarchy, grouping and creating controls, rigging the characters, Use of deformers in rigging process.	8 Hours
Unit-3:	Brief about animation principles, Animation tools in 3D, "Applying classical 2D animation techniques i.e; Stretch squash for 3D character". Creating the illusion of weight, Overview of Maya's playback controls, Exploring maya's animation preferences. Details about graph editor, Bouncing Ball Exercise, Body language.	8 Hours
Unit-4:	Animating object along a motion path, Utilizing the trax-editor to blend animation clips. Controlling attributes with set driven keys, Animating with constraints, Previewing animations in real-time with play blasts, Introduction to scene animation and key framing, dope sheet.	8 Hours
Unit-5:	Animal walk& run cycles, snakes and birds. Biped Character walk cycles, Biped Character run cycles, pushing and pulling objects. Facial animation and lip-sync. Nonlinear Animation with trax editor. Working with character sets and clips. character interactions.	8 Hours
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. * Latest editions of all the suggested books are recommended. Online References: https://ptgmedia.pearsoncmg.com/images/0735712530/samplechapter/0735712530c.pdf	



Course Code: BSA 514	DSE – 3 (Elective-5) B.Sc. Animation- Semester-V Concept of web and UI/UX Design.	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding web technologies and basic of web design	
CO2.	Understanding the use of HTML and CSS to making the web sites	
CO3.	Understanding the UI/UX basics and designing.	
CO4.	Analyzing the various techniques of UI/UX for designing.	
CO5.	Applying the Different techniques to design web site	
Course Content:		
Unit-1:	Introduction to bone system/Joints and IK handles, Creating bone system and Introduction to Web Technologies , Careers in Web Technologies and Job Roles ,How the Website Works, Client and Server Scripting Languages , Domains and Hosting ,Responsive Web Designing , Types of Websites (Static and Dynamic Websites) , Web Standards and W3C recommendations, Web template design using Photoshop & illustrator.	6 Hours
Unit-2:	What is Markup Language , Basic Structure of HTML , Difference Between HTML and XHTML , Head Section and Elements of Head Section , Meta Tags , Css Tags , Script Tag ,Table Tag , Div Tag , Header Tags , Paragraph, Span, Pre Tags, Anchor Links and Named Anchors , Image Tag , Object Tag , Iframe Tag , Forms , Form Tag , Attributes of Form , POST and GET Method , Fieldset and Legend , Text input, Text area ,Checkbox and Radio Button , Dropdown, List and Optgroup , File Upload and Hidden Fields , Submit, Image, Normal, Reset Button , Creating a Live Website Form , HTML Validator.	8 Hours
Unit-3:	Introduction to Cascading Style Sheets , Types of CSS , CSS Selectors ,Universal Selector , ID Selector ,Tag Selector , Class Selector , Sub Selector , Child Combinatory Selector , Adjacent Sibling Selector , Attribute Selector , Group selector , First-line and First-letter selector , Before and After Selector , CSS Properties , Type Properties , Background Properties ,Block Properties , Box Properties , List Properties , Border Properties , Positioning Properties , Real-time Implementation Conversation of Table to CSS Layout , CSS Menu Design (Horizontal, Vertical) , Form Designing. Creating web site, Web hosting.	8 Hours
Unit-4:	UX design overview, Basics of Usability, UXD process and work flow, UX research phase UX design phase, Validation and implementation phase, Creating UX design Portfolio	4 Hours
Unit-5:	Elements of UI design, Pillers of UI design , Dashboards and data visualization, UI designs for mobile and Web. Mockups design. Case study.	4 Hours
Text Books:	1.Web Designing Paperback – 2016by Hirdesh Bhardwaj (Author, Contributor)	
Reference Books:	1.Ux/Ui Design Dot Grid Paper Notebook Paperback – Import, 1 Sep 2018 by Terri Jones (Author) * Latest editions of all the suggested books are recommended. https://course.ccs.neu.edu/cs5500sp17/09-UX.pdf	



Course Code: BSA 516	DSE – 3 (Elective-6) B.Sc. Animation- Semester-V Design For Print	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the print designs and technologies using Adobe Indesign and coral draw. .	
CO2.	Understanding the document for designing, drawing and colors tools used in designing.	
CO3.	Understanding to create resume, brochure, leaflet, magazine.	
CO4.	Applying the various tool (Adobe Indesign and Coraldraw) to create print designs.	
CO5.	Applying the print design techniques to create resume, brochure, leaflet, magazine.	
Course Content:		
Unit-1:	Overview of print designs and technology, print basics, Getting Started with Corel Draw X7, Explore the Corel Draw X7 Interface, Customize the Workspace. Set Up a Drawing Page, Draw Shapes, Draw Lines, Bezier, Curves, Shape Tool, Include Objects. Working with Fills, Pattern, differentiates between RGB and CMYK colour and colour settings.	6 Hours
Unit-2:	Group and ungroup object, Masking Objects. Working with text tool, Point Text and Paragraph text, Add Text to Objects, Fit Text on a Path, Work with Paragraph Text, Wrap Paragraph text, Work with a Text Style, Insert Special Characters, Spell Check a Documents. Create a Table, Modify a Table, Format a Table, and Apply Artistic Effects to Objects. Convert Bitmap Images to Vector Images,	6 Hours
Unit-3:	Work with Print Styles, Interactive effect tool: Transparency, Extrude, Envelop, Blend, Drop Shadow. Work with Print Styles, Understand Page Elements, Create Layers, Master page, Create Custom Shapes, Format Objects, Edit Objects Enhance Images, Export Corel Draw Files in Other Formats.	6 Hours
Unit-4:	Getting Started with Adobe Indesign, Indesign Interface, Customize the Workspace. Dragging and costumizing Panels, Navigating through multiple pages, Introduce first resume project. Creating a document, Master Pages, Rulers and Guides, Adding and Deleting pages, Working with Master Pages, tracking kerning and leading, Placing text and graphics on the document pages, Developing paragraph, character and object styles, Nesting character styles within paragraph styles, Adjusting the viewing quality of the document.	6 Hours
Unit-5:	Developing paragraph, character and object styles, Editing text , Placing, managing and editing linked graphics, Workflow tips for placing graphics into InDesign, Placing graphics within the cells of a table, Wrapping text around a graphic, Adding transparency effects, Applying transparency settings to images and text, Creating Tints and Advanced Gradient Techniques, Importing illustrator documents that use transparency, OutPut and Exporting, Packaging Files, Creating	6 Hours
Text Books:	1. Corel DrawX7 The Official Guide Gary David Boutan	
Reference Books:	1. Straight to the point Corel DrawX7- Dinesh Maidanani 2. Coral DrawX7 in simple steps- Kogent solution 3. Learn Adobe InDesign CC for Print and Digital Media Publication: Adobe Certified Associate Exam 4. Preparation Book by Cari Jansen, Jonathan Gordon, and R. Schwartz * Latest editions of all the suggested books are recommended. Online References: https://helpx.adobe.com/pdf/indesign_reference.pdf http://product.corel.com/help/CorelDRAW/540229932/Main/EN/User-Guide/CorelDRAW-X7.pdf	



Course Code: BSA 515	Core Course – 22 B.Sc. Animation- Semester-V Visual Effect techniques	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the node based compositing systems.	
CO2.	Understanding to use open poly support feature to enhance the rotoscoping skills.	
CO3.	Understanding to get 3D compositing techniques such as camera projection, 3D particles.	
CO4.	Applying the VFX features and create shorts like Gravity films.	
CO5.	Applying the different 3D compositing techniques such as camera projection, 3D particles to create a vfx shot.	
Course Content:		
Unit-1:	Introduction to node based compositing system, fusion interface, user preferences, flow, console, timeline, spline, setting up timeline, I/o nodes, merge nodes, basic animations. Mask tools (bitmap, polygon, wand, bspline, etc), application of mask tool, rotoscoping, stereoscopic rotoscoping workflow, matte control	6 Hours
Unit-2:	Keying nodes, chroma keyer, ultra keyer, luma keyer, exercise on green/blue screen removal using keyers tool, compositing with green screen/blue screen footage. Tracking node, stabilization , set extension using tracking and chroma footage. 3D nodes: creating basic models , texturing, shading, creating 3D motion graphics, Import and export fbx . 3D camera, camera projection, projector 3D, deep pixel effects, render passes, re-lighting, light node, 3D particle nodes, exercise on 3D particle nodes, creating snowfall, water fall, forest using 3D particles, creating macro. Use of macro nodes. 3D tracking,	8 Hours
Unit-3:	Navigating the interface ,Building Node Graphs , Creating key frames ,The Curve Editor, Key frame animation , Math expressions and linking , Creating animated elements ,Correcting for lens distortion.Color and Rotoscoping ,Nuke’s color management ,Color correcting composites ,Rotoscoping ,Masking operations Compositing CGI and Channels ,Mastering Nuke’s channels system , Multi-pass CG compositing , Adding motion blur ,Adding depth of field, Keying , Lumakeys ,All four of Nuke’s chromakeyers , Proper use of Addmix and Keymix nodes , How to merge multiple keys ,Tracking, Warping and Retiming , The Tracker node , How to do a match move , Spline warp and Grid warp .	8 Hours
Unit-4:	Navigating the interface ,Building Node Graphs , Creating key frames ,The Curve Editor, Key frame animation , Math expressions and linking , Creating animated elements ,Correcting for lens distortion.Color and Rotoscoping ,Nuke’s color management ,Color correcting composites ,Rotoscoping ,Masking operations Compositing CGI and Channels ,Mastering Nuke’s channels system , Multi-pass CG compositing , Adding motion blur ,Adding depth of field, Keying , Lumakeys ,All four of Nuke’s chromakeyers , Proper use of Addmix and Keymix nodes , How to merge multiple keys ,Tracking, Warping and Retiming , The Tracker node , How to do a match move , Spline warp and Grid warp .	8 Hours
Unit-5:	Camera Tracking ,How to do camera tracking ,Converting point clouds to meshes , Compensating for lens distortion , Getting 3D information to the 2D composite, Planar Tracker and Particles , How to do planar tracking , How to use planar tracking results ,Using Nuke’s 3D particle system , Creating your own particles ,Advanced 3D Nodes , Deep compositing , Alembic geometry , Modeling 3D geometry from a 2D scene , Creating point clouds from CG renders	8 Hours
Text Books:	1. Blackmagic Design Fusion 7 Studio: A Tutorial Approach Kindle Edition by Prof.	



	Sham Tickoo Purdue Univ. (Author), <u>CADCIM Technologies</u> (Author)	
<u>Reference Book:</u>	1. Digital Compositing with Blackmagic Fusion (English, Paperback, Lanier Lee) 2. Professional Digital Compositing: Essential Tools and Techniques Paperback – Import, 8 Dec 2009 Online References: https://documents.blackmagicdesign.com/UserManuals/Fusion9_Manual.pdf https://learn.foundry.com/nuke	



Course Code: BSA 558	Core Course – 23 B.Sc. Animation- Semester-V Concepts of 3D Animation& Rigging with Maya-Lab	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the Rigging process in Maya, they are elaborated with creation of different kind of rigs for characters and objects.	
CO2.	Understanding the animation in Maya and practice to apply various animation principles and learn different tools for Animation in Maya.	
CO3.	Analyzing the various techniques of Animation in Maya.	
CO4.	Applying the various technique of rigging in Maya	
CO5.	Applying the various technique of animation in maya.	
	<ul style="list-style-type: none"> • Create rigs for male and female characters. • Create rigs for animals, birds, fishes and worms. • Mechanical rig, Vehicle rig. • Rigging various props. • Make an animation of a character walking in street he pick up some object and throw it. • Make various expressions of models and use them for blend shapes. • Make different kinds of biped walk(Happy, Sad, Attitude and Tiptop) • Create run, jump, skid animations. Stair up and stair down. • Make animations of coin drop, ball bounce, path animation. 	
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Book:	2. Introducing Maya 2017 by Dariush Derakhshani. Online References: https://ptgmedia.pearsoncmg.com/images/0735712530/samplechapter/0735712530c.pdf	



Course Code: BSA 559	Core Course – 24 B.Sc. Animation- Semester-V Advance Editing Techniques(FCP) - LAB	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the concepts of advance video editing software.	
CO2.	Analyzing the process of creating news packaging in Final cut pro	
CO3.	Applying the editing techniques to the video in Final cut pro	
CO4.	Creating the special effects and video transition on video in Final cut pro	
CO5.	Creating a motion teaser/short film/documentaries.	
Course Content:		
Experiments:	<ul style="list-style-type: none"> • History of editing, Linear and non linear editing, Concept of non linear editing, Introduction MAC systems, Exploring the Interface, Commanding the Keyboard Lesson , Organizing Optimizing & Analyzing Media Lesson ,Importing Files & Folders , Importing from a Camera Archive & iMovie , Working in the Event Library , Organizing Media with Keywords , Rating Deleting & Transcoding Media, Working in the Project Library . • Building a Rough Cut , Performing Insert Overwrite & Connect Edits , Removing Unwanted Material , Replacing Clips & 3 Point Editing , Adjusting Clip Timing ,Auditioning Clips, Using the Trimming Tools , Working with Storylines , Creating Secondary Storylines & Compound Clips , • Editing the Soundtrack , Working with Music , Adding Markers & Dolby Surround Panning ,Enhancing the Soundtrack , Retiming Video , Creating Hold Frames & Controlling Video Quality , Applying & Modifying Transitions , Applying & Animating Effects , Working with Generators & Backgrounds , Transforming Images , Trimming Cropping & Distorting Images , Applying & Animating Titles , Working with Themes & Placeholders , Balancing & Matching Color , • Manually Color Correcting Images , Using Color & Shape Masks , Publishing to Apple Devices , Publishing to Blu-ray Vimeo & QuickTime , Exporting using Compressor. Understanding TV broadcasting visual elements, creating, bug, bumper, frame, lower third, ticker, transition, logo animation, • Creating teaser .creating documentary, Editing news shots. 	
Text Books:	1.Apple Pro Training Series: Final Cut Pro X Paperback – Import, 20 Feb 2013 by Diana Weynand (Author)	
Reference Books:	1. Film Editing: Great Cuts Every Filmmaker and Movie Lover Must. Know Author: Gae * Latest editions of all the suggested books are recommended. Online References: https://www.a2gov.org/departments/communications/ctn/services/Documents/final_cut_pro_x-10.1-user_guide.pdf	



Course Code: BSA 561	DSE – 4 (Elective-7) B.Sc. Animation- Semester-V Concepts of web and UI/UX Design (LAB)	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding web technologies and basic of web design	
CO2.	Analyzing the use of HTML and CSS to making the web sites	
CO3.	Analyzing the UI/UX basics and designing.	
CO4.	Applying the various techniques of UI/UX for designing.	
CO5.	Creating the design of a web site using Different techniques of web designing	
Experiments:	<ol style="list-style-type: none"> 1.HTML tags practice. 2. Create Webpage using html 3. Publishing a webpage 4. Crete UI designs 5. Create a Mobile App Interface 6. Create a E-marketing material 	
Text Books:	1.Web Designing Paperback – 2016by Hirdesh Bhardwaj (Author, Contributor)	
Reference Book:	1.Ux/Ui Design Dot Grid Paper Notebook Paperback – Import, 1 Sep 2018 by Terri Jones (Author) Online references: https://course.ccs.neu.edu/cs5500sp17/09-UX.pdf	



Course Code: BSA 562	DSE – 4 (Elective-8) B.Sc. Animation- Semester-V Design for Print (LAB)	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the print designs and technologies using Adobe Indesign and coral draw. .	
CO2.	Analyzing the document for designing, drawing and colors tools used in designing.	
CO3.	Analyzing to create resume, brochure, leaflet, magazine.	
CO4.	Applying the various tool (Adobe Indesign and Coraldraw) to create print designs.	
CO5.	Creating the resume, brochure, leaflet, magazine using print design techniques .	
	<ol style="list-style-type: none"> 1. Draw a 5 basic object using the basic shapes. 2. Create a business card for graphic design company using the shapes and text. 3. Create a magazine cover page. 4. Create a CD front and back cover design for a music company. 5. Draw simple line object with the help of shape tools in Adobe Illustrator. 6. Create a scene of jungle with lines, shapes and object and pen tool. 7. Apply colour and gradient to above scene. 8. Import a drawing, trace it and apply colour filter and effect and export to various image formats. 9. Some advertisement for products, posters of social importance. 10. Create resume using Indesign 11. Create Brochure using Indesign 12. Create Magazine using Indesign 	
Text Books:	<ol style="list-style-type: none"> 1. Corel DrawX7 The Official Guide Gary David Boutan 	
Reference Book:	<ol style="list-style-type: none"> 2. Straight to the point Corel DrawX7- Dinesh Maidanani 3. Coral DrawX7 in simple steps- Kogent solution 4. Learn Adobe InDesign CC for Print and Digital Media Publication: Adobe Certified Associate Exam Preparation Book by Cari Jansen, Jonathan Gordon, and R. Schwartz <p>Online References:</p> <p>https://helpx.adobe.com/pdf/indesign_reference.pdf</p> <p>http://product.corel.com/help/CorelDRAW/540229932/Main/EN/User-Guide/CorelDRAW-X7.pdf</p>	



Course Code: BSA 560	Core Course – 25 B.Sc. Animation- Semester-V Visual Effect Techniques -LAB	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the node based compositing systems.	
CO2.	Analyzing to use open poly support feature to enhance the rotoscopy skills.	
CO3.	Analyzing 3D compositing techniques such as camera projection, 3D particles.	
CO4.	Applying to use VFX features and create shorts like Gravity films.	
CO5.	Creating a vfx shot using different 3D compositing techniques such as camera projection, 3D particles.	
	<ul style="list-style-type: none"> • Creating Animation of Fan, using motion blur, and graph editor • Merging foreground with background, rotoscopy • Keying and color correction, Set extension • Create tracking scene • Application of rig removal • Create a scene using 3D nodes • Create a scene using camera projection techniques • Create a scene using 3D particle. • Compositing layer passes • Creating Animation of Fan, using motion blur, and graph editor • Merging foreground with background, rotoscopy • Keying and color correction, Set extension • Create tracking scene • Application of rig removal • Create a scene using 3D nodes • Create a scene using camera projection techniques • Create a scene using 3D particle. • Creating scene from 2D to 3D • 3D tracking. • Compositing layer passes 	
Text Books:	1. Blackmagic Design Fusion 7 Studio: A Tutorial Approach Kindle Edition by <u>Prof. Sham Tickoo Purdue Univ.</u> (Author), <u>CADCIM Technologies</u> (Author)	
Reference Book:	1. Digital Compositing with Blackmagic Fusion (English, Paperback, Lanier Lee) 2. Professional Digital Compositing: Essential Tools and Techniques Paperback – Import, 8 Dec 2009 Online References: https://documents.blackmagicdesign.com/UserManuals/Fusion9_Manual.pdf https://learn.foundry.com/nuke	



Course Code: BSA 608	DSE – 5 (Elective-9) B.Sc. Animation- Semester-VI	L-2 T-0 P-0 C-2
Concepts of Augmented Reality & Virtual Reality		
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the basic concepts of Augmented reality	
CO2.	Understanding the basic concepts of Virtual reality	
CO3.	Analyzing the different tools and frameworks in virtual reality.	
CO4.	Analyzing the different tools and frameworks in Key Technology in AR.	
CO5.	Applying the VR in 3D visual Shot creation	
Course Content:		
Unit-1:	Introduction of Virtual Reality: Fundamental Concept and Components of Virtual Reality. Primary Features and Present Development on Virtual Reality , Multiple Modals of Input and Output Interface in Virtual Reality, Output Devices	6 Hours
Unit-2:	Visual Computation in Virtual Reality: Fundamentals of Computer Graphics. Software and Hardware Technology on Stereoscopic Display. Advanced Techniques in CG: Management of Large Scale Environments & Real Time Rendering ,Environment Modeling in Virtual Reality: Geometric Modeling, Behavior Simulation, Physically Based Simulation	6 Hours
Unit-3:	Creating VR designs using unity game engine, Basics of VR build. Introduction of Augmented Reality (AR): System Structure of Augmented Reality. Key Technology in AR.	6 Hours
Unit-4:	Development Tools and Frameworks in Virtual Reality, Visual perception, 3d interaction design.	6 Hours
Unit-5:	Application of VR in Digital Entertainment: VR Technology in Film & TV Production. VR Technology in Physical Exercises and Games. Demonstration of Digital Entertainment by VR.	6 Hours
Text Books:	1- Creating Augmented and Virtual Realities: Theory and Practice for Next-Generation Spatial Computing	
Reference Books:	<p>* Latest editions of all the suggested books are recommended.</p> <p>Online references: https://www.lncc.br/~jauvane/papers/RelatorioTecnicoLNCC-2503.pdf http://vr.cs.uiuc.edu/vrbook.pdf</p>	



Course Code: BSA 610	DSE – 5 (Elective-10) B.Sc. Animation- Semester-VI Professional 3D design with cinema 4D	L-2 T-0 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the knowledge about cinema 4D software	
CO2.	Understanding the Knowledge about modeling & 3D motion graphics element	
CO3.	Understanding the creation 3D design using Cinema 4D	
CO4.	Applying different techniques using Cinema 4D to create 3D motion graphics and elements	
CO5.	Applying the various Techniques and tools in cinema4D.	
Course Content:		
Unit-1:	The Cinema 4D workflow, Differences between 2D and 3D, Navigating the viewports, Navigating using a three-button mouse and keyboard shortcuts, Exploring the interface, Configuring project settings, Application preferences, exploring object hierarchy, Creating, selecting, and transforming objects, Object categories – active and passive objects, Comparing object types, The Attribute Manager, Creating a basic model with primitive and null objects.	6 Hours
Unit-2:	Working with Splines: Creating and working with splines, Selecting and transforming points on a spline, Nurb types, Manipulating paths from Adobe Illustrator ,Polygonal Modeling Tools: Points, edges, and polygons Modeling with the Knife tool, Modeling with the Extrude tool, Modeling with the Extrude Inner tool, The Create Polygon and Bridge tools, Creating a Hyper NURBS object, Creating a simple model	6 Hours
Unit-3:	Using Deformers: Working with deformers, The Wind Deformer, The Wrap Deformer, The Spline Wrap, Materials and Texturing: Understanding material channels, Applying materials: Projection methods, Reflective surfaces / shiny surfaces, Rough surfaces / bumpy surfaces, Transparent surfaces Using alpha channels to create a label, Texturing type using multiple materials, Working with Lights: Understanding how lights work in the 3D world, Adjusting falloff to limit how light affects objects Understanding light types, Creating and manipulating shadows, Creating light rays with visible light, Creating a simple three-point light setup.	6 Hours
Unit-4:	Keyframes and Animation: Understanding keyframe animation, Animating in the Timeline, The F-Curve Manager, Create an animated pause, Camera Movement and Control: Differences between the Editor Camera and a camera object, Exploring field of view and aspect ratio, Explaining parallax in camera movement, Creating a dynamic camera movement, Refining and previewing a camera	6 Hours



	movement	
Unit-5:	Output and Rendering: The render engine, Render settings, Rendering still images vs. animation, Setting up multi-pass rendering for still images, Batch-rendering multiple files, Compositing in After Effects: The 3D animation workflow, Setting up a multi-pass render, Importing elements into After Effects, Manipulating 3D renders in After Effects, Fine-tuning a composition in After Effects	6 Hours
<u>Text Books:</u>	1. Cinema 4D Beginner's Guide, Book by Jen Rizzo.	
<u>Reference Books:</u>	1.Cinema 4D : the artist's project sourcebook Textbook by Anne Powers * Latest editions of all the suggested books are recommended. Online References: https://http.maxon.net/pub/r11/doc/quickstart_us.pdf	



Course Code: BSA 609	Core Course – 26 B.Sc. Animation- Semester-VI Concepts of 3D Dynamics and Liquid simulation.	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the concept of dynamics and n-Dynamics in Maya.	
CO2.	. Understanding various attributes of Fur node in Maya.	
CO3.	Understanding with liquid simulation using Realflow.	
CO4.	Applying real time Hair for 3D characters and real cloths for Animation using n-Cloth feature of Maya	
CO5.	Applying fur for animals models.	
CO6.	Applying special effects using Maya Particles and n-Particles such as water, fire smoke etc.	
Course Content:		
Unit-1:	Introduction to n-Cloth, Use of mesh as n-Cloth, Optimizing geometry for n-Cloth, Setting n Cloth collisions and constrains, n-cloth and external dynamic forces. Various n-cloth simulations, n-cloth caches creating and editing, nCloth caches attributes Optimizing n-cloth, n-Cloth examples	6 Hours
Unit-2:	Introduction to Hair, Hair styling, Painting and setting positions for hair follicles, Assigning hair system, Making collisions and use of constrains.	6 Hours
Unit-3:	Introduction to Fur system in Maya, Assigning fur, defining various fur attributes like fur maps, reversing normals etc. Shadow and render settings of fur.	6 Hours
Unit-4:	Introduction to n-Particles and particles in Maya, different kind of emitters, particles attribute, collision of particles with other objects, various fields, particle shapes and dynamic, particle instance, particle collision event editor, effects. Soft and rigid bodies, active and passive rigid bodies, dynamic attributes of soft and rigid bodies, pin constraint, hinge constraint, spring constraint, paint soft body weight tool.	6 Hours
Unit-5:	Interface of realFlow, Creating splash, Making the splash flow back on to the bottle ,creating blood and honey, setup a stormy ocean and simulate a mesh in preparation form Maya tiling.	6 Hours
Text Books:	1- Mastering Autodesk Maya by Eric Keller.	
Reference Books:	1-Introducing Maya2017 by Dariush Derakhshani. * Latest editions of all the suggested books are recommended. Online reference: https://www.diva-portal.org/smash/get/diva2:119708/FULLTEXT01.pdf	



Course Code: TMU- 601	AECC – 6 B.Sc. Animation- Semester-VI Environmental Studies	L-2 T-0 P-0 C-2
Course Outcomes:	Based on this course, the graduate will understand / evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development.	
Course Content:		
Unit-1:	<i>Definition and Scope</i> of environmental studies, multidisciplinary nature of environmental studies, concept of sustainability & sustainable development. <i>Ecology and Environment:</i> Concept of an Ecosystem- its structure and functions, Energy Flow in an Ecosystem, Food Chain, Food Web, Ecological Pyramid & Ecological succession, Study of following ecosystems: Forest Ecosystem, Grass land Ecosystem & Aquatic Ecosystem & Desert Ecosystem.	8 Hours
Unit-2:	<i>Natural Resources:</i> Renewable & Non-Renewable resources; Land resources and land use change; Land degradation, Soil erosion & desertification. Deforestation: Causes & impacts due to mining, Dam building on forest biodiversity & tribal population. Energy Resources: Renewable & Non-Renewable resources, Energy scenario & use of alternate energy sources, Case studies. Biodiversity: Hot Spots of Biodiversity in India and World, Conservation, Importance and Factors Responsible for Loss of Biodiversity, Biogeographical Classification of India	8 Hours
Unit-3:	<i>Environmental Pollutions:</i> Types, Causes, Effects & control; Air, Water, soil & noise pollution, Nuclear hazards & human health risks, Solid waste Management; Control measures of urban & industrial wastes, pollution case studies.	8 Hours
Unit-4:	<i>Environmental policies & practices:</i> Climate change & Global Warming (Greenhouse Effect), Ozone Layer - Its Depletion and Control Measures, Photochemical Smog, Acid Rain Environmental laws: Environment protection Act; air prevention & control of pollution act, Water Prevention & Control of Pollution Act, Wild Life Protection Act, Forest Conservation Acts, International Acts; Montreal & Kyoto Protocols & Convention on biological diversity, Nature reserves, tribal population & Rights & human wild life conflicts in Indian context	8 Hours
Unit-5:	<i>Human Communities & Environment:</i> Human population growth; impacts on environment, human health & welfare, Resettlement & rehabilitation of projects affected person: A case study, Disaster Management; Earthquake, Floods & Droughts, Cyclones & Landslides, Environmental Movements; Chipko, Silent Valley, Vishnoi's of Rajasthan, Environmental Ethics; Role of Indian & other regions & culture in environmental conservation, Environmental communication & public awareness; Case stud	8 Hours
Field Work:	1. Visit to an area to document environmental assets; river/forest/flora-fauna etc. 2. Visit to a local polluted site: urban/ rural/industrial/agricultural. 3. Study of common plants, insects, birds & basic principles of identification. 4. Study of simple ecosystem; pond, river etc.	
Text Books:	1. "Environmental Chemistry", De, A. K., New Age Publishers Pvt. Ltd.	
Reference Books:	1. "Biodiversity and Conservation", Bryant, P. J., Hypertext Book 2. "Textbook of Environment Studies", Tewari, Khulbe & Tewari, I.K. Publication 3. "Introduction to Environmental Engineering and Science", Masters, G. M., Prentice Hall India Pvt. Ltd. 4. "Fundamentals of Ecology", Odem, E. P., W. B. Saunders Co.	



* Latest editions of all the suggested books are recommended.

Course Code: BSA 607	Core Course – 27 B.Sc. Animation- Semester-VI Production Process of 3D Animation	L-3 T-1 P-0 C-4
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the basic concepts of production pipeline.	
CO2.	Understanding various departments of 3d animation studio.	
CO3.	Understanding pre production pipeline for using story, script, character designing, background and layouts, staging Storyboarding, voice over, Background audio, animatic,	
CO4.	Applying the production process pipeline for character modeling, texturing and Shading, background creation, props Modeling, Rigging, Character animations, lighting the scenes	
CO5.	Applying the post production pipeline used for rendering in 3D animation	
Course Content:		
Unit-1:	Basic steps to make a 3d animation, Why do we need a production pipeline?, What is the production pipeline?, An introduction of the various departments of 3d animation studio.	6 Hours
Unit-2:	Key position in a 3d Animation studio and their role, director, producer, lead technical director, lead animator, structure of organization and various departments,	6 Hours
Unit-3:	Introduction to pipeline “stages”, story, script, storyboarding, casting, voice over, Background audio, animatic, character designing, background and layouts, staging	6 Hours
Unit-4:	Production process- Character modeling, texturing and Shading, background creation, props modeling, Rigging, Character animations, Lighting the scenes, .	6 Hours
Unit-5:	Postproduction: Rendering, soft-ware rendering, mental ray rendering, Hard-ware rendering, image sequences, rendering passes, compositing, dynamics, special effects.	6 Hours
Text Books:	1- 3D Animation Essentials by Andy Beane	
Reference Books:	1-Body Language - Advanced 3D Character Rigging by- Eric Allen & Kelly L. Murdock 2-Maya 2017- Character Modeling and Animation by Tereza Flexman 3- The 3D production Pipeline by Fabio Pellacini * Latest editions of all the suggested books are recommended. Online References: https://www.blopanimation.com/wp-content/uploads/2014/12/Making-an-Animated-Short.pdf	



Course Code: BSA 658	DSE– 6 (Elective-11) B.Sc. Animation- Semester-VI Concepts of Augmented Reality and Virtual Reality (LAB)	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the basic concepts of Augmented reality	
CO2.	Understanding the basic concepts of Virtual reality	
CO3.	Analyzing the different tools and frameworks in virtual reality.	
CO4.	Analyzing the different tools and frameworks in Key Technology in AR.	
CO5.	Creating an Animation video using VR and AR	
Experiments:	<ul style="list-style-type: none"> • Understanding AR and VR tools • Case study of AR/VR environment game and shots. • Creating 3D element to be tested in AR/VR environment • Basics of AR/VR software. • AR/VR through unity game engine • Interaction design of 3D model. 	
Text Books:	1- Creating Augmented and Virtual Realities: Theory and Practice for Next-Generation Spatial Computing	
	Online references: https://www.lncc.br/~jauvane/papers/RelatorioTecnicoLNCC-2503.pdf http://vr.cs.uiuc.edu/vrbook.pdf	



Course Code: BSA 661	DSE – 6 (Elective-12) B.Sc. Animation- Semester-VI Professional 3D design with Cinema 4D(LAB)	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Analyzing the knowledge about cinema 4D software	
CO2.	Analyzing the Knowledge about modeling & 3D motion graphics element	
CO3.	Analyzing the creation 3D design using Cinema 4D	
CO4.	Applying different techniques using Cinema 4D to create 3D motion graphics and elements	
CO5.	Creating a final output in cinema 4D.	
Experiments:	<ul style="list-style-type: none"> • Creating basic model in cinema 4D • Create a wine bottle , cocktail umbrella using a combination primitive object spline, generators and nurbs generators • Modeling a car wheel using hyperNURBS • Create some material and implement it into the scene. • Camera setup in scene. • Animating the objects and camera using timeline and F-curve manager. • Import object into after effect and creating motion graphics with combination of After effect and cinema 4D 	
Text Books:	1.Cinema 4D Beginner's Guide, Book by Jen Rizzo.	
Reference book	1.Cinema 4D : the artist's project sourcebook Textbook by Anne Powers Online References: https://http.maxon.net/pub/r11/doc/quickstart_us.pdf	



Course Code: BSA 659	Core Course – 28 B.Sc. Animation- Semester-VI Concepts of 3D Dynamics and Liquid simulation. (Lab)	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the concept of dynamics and n-Dynamics in Maya.	
CO2.	Applying various attributes of Fur node in Maya.	
CO3.	Applying fur for animals models.	
CO4.	Applying real time Hair for 3D characters and real cloths for Animation using n-Cloth feature of Maya	
CO5.	Creating special effects using Maya Particles and n-Particles such as water, fire smoke etc.	
CO6.	Creating liquid simulation using Realfow.	
Experiments:	<ul style="list-style-type: none"> • Create a hair system on male or female model • Apply fur on a dog or cat model • Create a scene with waterfall or fountain • Apply active/passive soft and rigid bodies. • Create a scene of camp fire followed by rainfall/snowfall • Create an animation of a non living object. 	
Text Books:	1- Mastering Autodesk Maya by Eric Keller.	
Reference Books:	1-Introducing Maya2017 by Dariush Derakhshani. Online reference: https://www.diva-portal.org/smash/get/diva2:119708/FULLTEXT01.pdf	



Course Code: BSA 660	SEC– 3 B.Sc. Animation- Semester-VI Project and Portfolio Development				L-0 T-0 P-4* C-6																									
Course Outcomes:	On completion of the course, the students will be :																													
CO1.	Applying the production pipeline concepts to create an animated Short film.																													
CO2.	Applying the various types of 3D animation tool and techniques to create project																													
CO3.	Applying the basic concepts of animation tools available in Maya.																													
CO4.	Applying the Animation and rigging process into the project.																													
CO5.	Creating animated video uses various 3D animation tools.																													
	<p>Students need to submit their project proposal .After approval of project proposal Student will create and submit a short on VFX/3D / 2D / Animation project individually and Project report based on it. This project will be evaluated by a panel of internal faculty members as well as by external examiner.</p> <p>Students have to create a 3d Animation short movie individually or in group to execute the learning and to showcase their skills to the industry.</p>																													
Evaluation Scheme:	<p><u>INTERNAL EVALUATION-</u></p> <table border="1" data-bbox="418 1108 1385 1377"> <thead> <tr> <th>Attendance</th> <th>Presentation</th> <th>Concept and its execution</th> <th>Viva</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">10</td> <td style="text-align: center;">20</td> <td style="text-align: center;">10</td> <td style="text-align: center;">50</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p><u>EXTERNAL EVALUATION-</u></p> <table border="1" data-bbox="418 1470 1385 1606"> <thead> <tr> <th>File</th> <th>Presentation</th> <th>Concept and its execution</th> <th>Viva</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">10</td> <td style="text-align: center;">20</td> <td style="text-align: center;">10</td> <td style="text-align: center;">50</td> </tr> </tbody> </table>					Attendance	Presentation	Concept and its execution	Viva	Total	10	10	20	10	50						File	Presentation	Concept and its execution	Viva	Total	10	10	20	10	50
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