



*Your Dreams Our Goal*  
**POORNIMA**  
**UNIVERSITY**

Member of Association of Indian Universities & Approved by UGC (Govt. of India) under 2(f) & 12(B)

# FACULTY OF DESIGN AND ARTS

DEPARTMENT OF VISUAL ARTS  
AND ANIMATION



## SCHEME & SYLLABUS BOOKLET

BATCH 2022

**VISUAL ARTS & ANIMATION**

**DEPARTMENT**

**B.SC ANIMATION & VFX**

**BATCH - 2022-2025**

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**Disclaimer:** The scheme, syllabus and other materials published in this booklet may be changed or modified as per the requirement after approval of competent authority. The decision taken by the management of Poornima University will be final and abiding to all.

## Student Details

Name of Student:

Name of Program:

Semester:

Year:

Batch:

Faculty of:



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### ***VISION***

To create knowledge based society with scientific temper, team spirit and dignity of labor to face global competitive challenges.

### ***Mission***

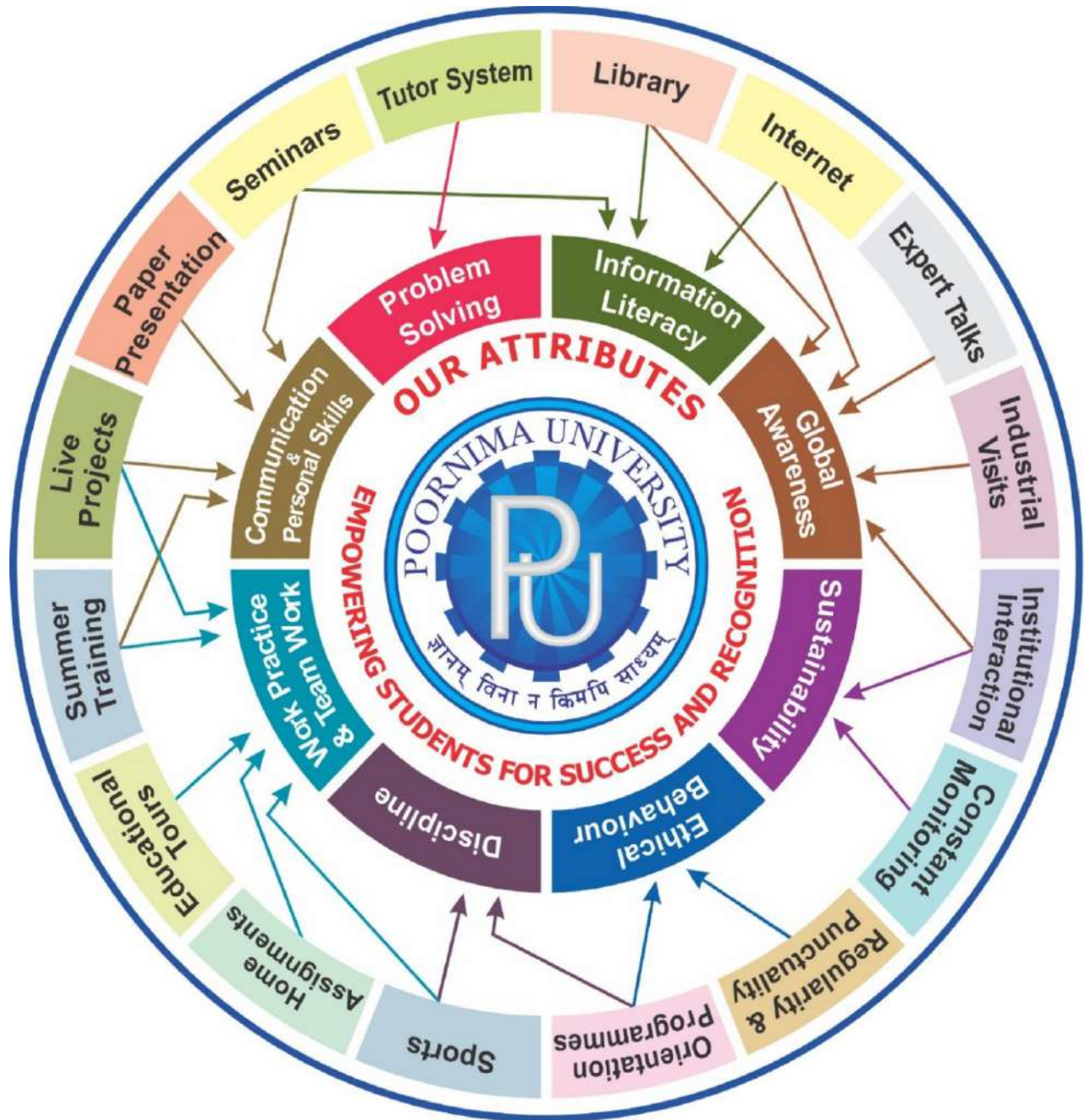
To evolve and develop skill based systems for effective delivery of knowledge so as to equip young professionals with dedication and commitment to excellence in all spheres of life.

### ***Quality Policy***

To provide Quality Education through Faculty development, updating of facilities and continual improvement meeting University norms and keeping stake holders satisfied.

## Knowledge Wheel

At Poornima, the academic atmosphere is a rare blend of modern technical as well as soft skills and traditional systems of learning processes.



## **About Program and Program Outcomes (PO):**

**Title of the Programme:** Bachelor of Science (Animation & VFX): Batch: 2022 - 25

**Nature of the Programme:** Animation & VFX is three-year full-time programme.

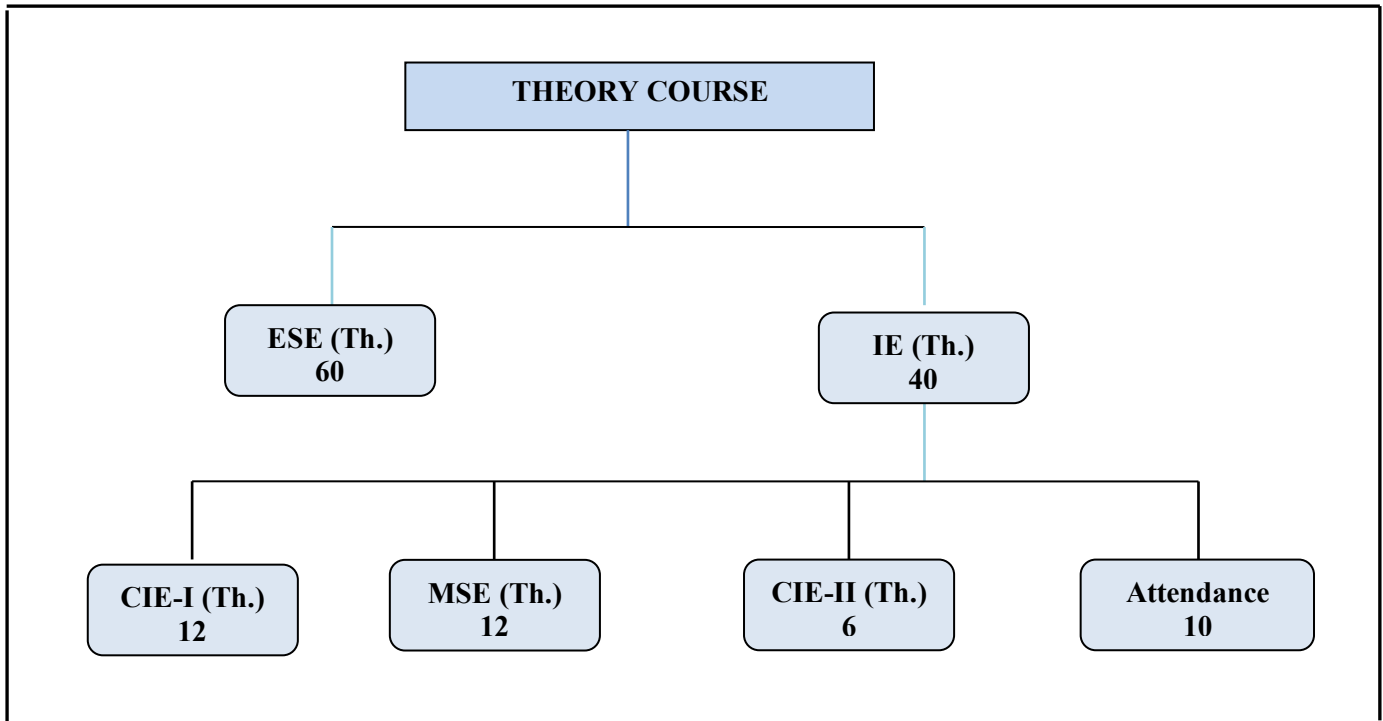
## **Program Outcomes (PO):**

**Animation & VFX. AR &VR Graduates will be able to:**

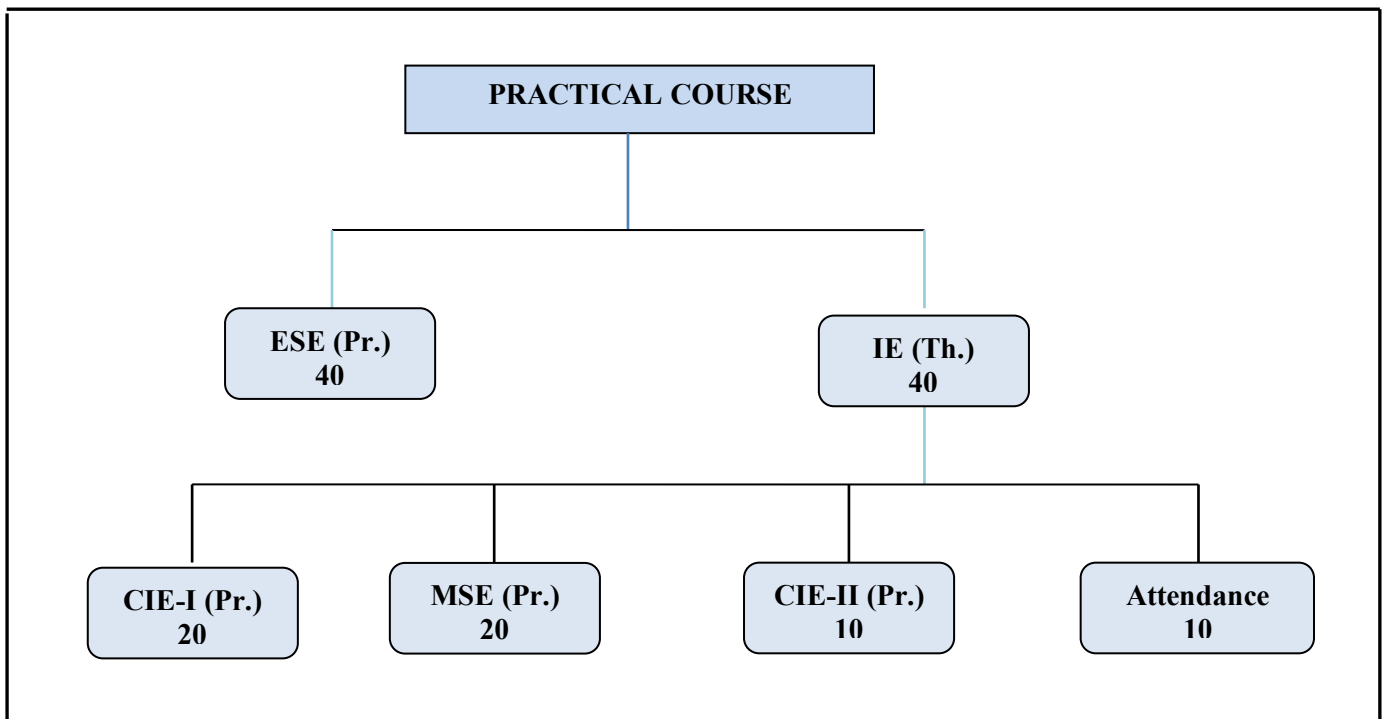
1. **Problem analysis:** Identify, formulate, research literature, and analyze complex design problems reaching substantiated conclusions using elements and principles of design.
2. **Communication:** Communicate effectively on complex design activities with the design community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
3. **Design knowledge:** Apply the knowledge of design fundamentals, and a specialization to the solution of complex design problems.
4. **Design/development of solutions:** Design solutions for complex problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **Project management and finance:** Demonstrate knowledge and understanding of the design and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
7. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
8. **The Designer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional design practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the designing practice.
11. **Environment and sustainability:** Understand the impact of the professional designing solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## Examination System:

### A. Marks Distribution of Theory Course:



### B. Marks Distribution of Practical Course :



**Th.** : Theory, **Pr.** : Practical, **ESE**: End Semester Examination, **MSE**: Mid Semester Examination, **CIE**: Continuous Internal Evaluation.

## Marks Distribution of Attendance:

Guidelines for Marks Distribution of Attendance Component		
S No.	Total Course Attendance (TCA) range in Percentage	Marks allotted (out of 10)
1	$95\% \leq \text{TCA}$	10
2	$90\% \leq \text{TCA} < 95\%$	9
3	$85\% \leq \text{TCA} < 90\%$	8
4	$80\% \leq \text{TCA} < 85\%$	7
5	$70\% \leq \text{TCA} < 80\%$	6
6	$60\% \leq \text{TCA} < 70\%$	5
7	$50\% \leq \text{TCA} < 60\%$	4
8	$40\% \leq \text{TCA} < 50\%$	3
9	$30\% \leq \text{TCA} < 40\%$	2
10	$20\% \leq \text{TCA} < 30\%$	1
11	$\text{TCA} < 20\%$	0

## CO Wise Marks Distribution:

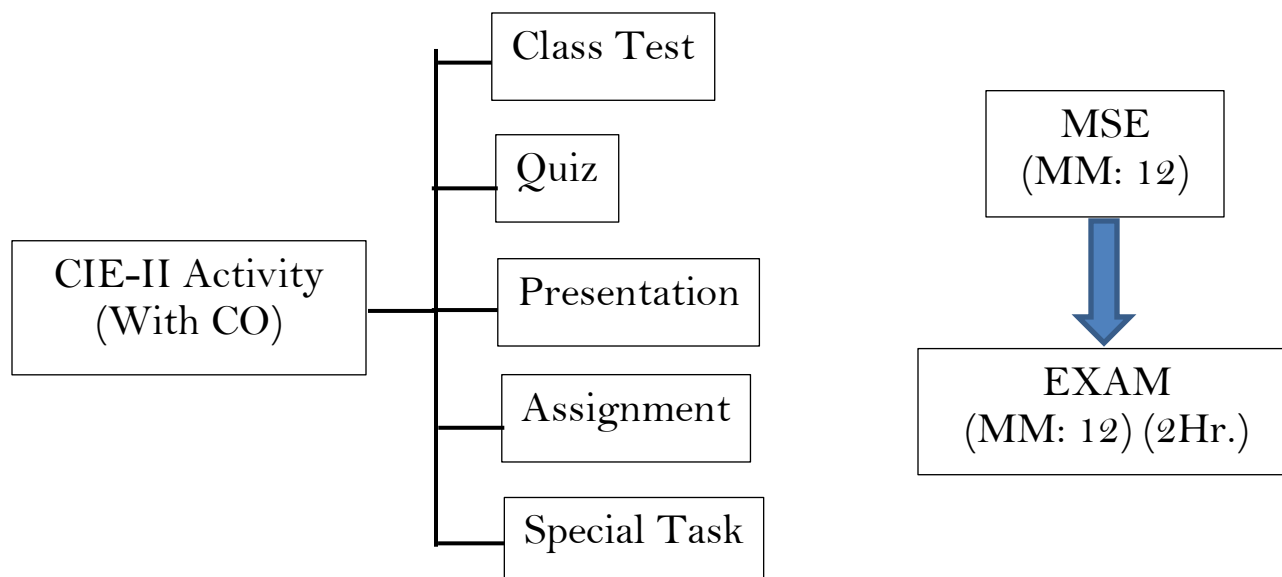
	Theory Subject		Practical/ Studio Subject	
	Maximum Marks	CO to be Covered	CO to be Covered	Maximum Marks
CIE-I (Class Test)	12 ( 6 + 6)	1 & 2	1 & 2	20 (10 + 10)
MSE	12 ( 6 + 6)	3 & 4	3 & 4	20 (10 + 10)
CIE-II (Activity/ Assignment )	6 (6)	5	5	10 (10)
Attendance	10	-	-	10
ESE	60	-	-	40
<b>TOTAL</b>	100	-	-	100



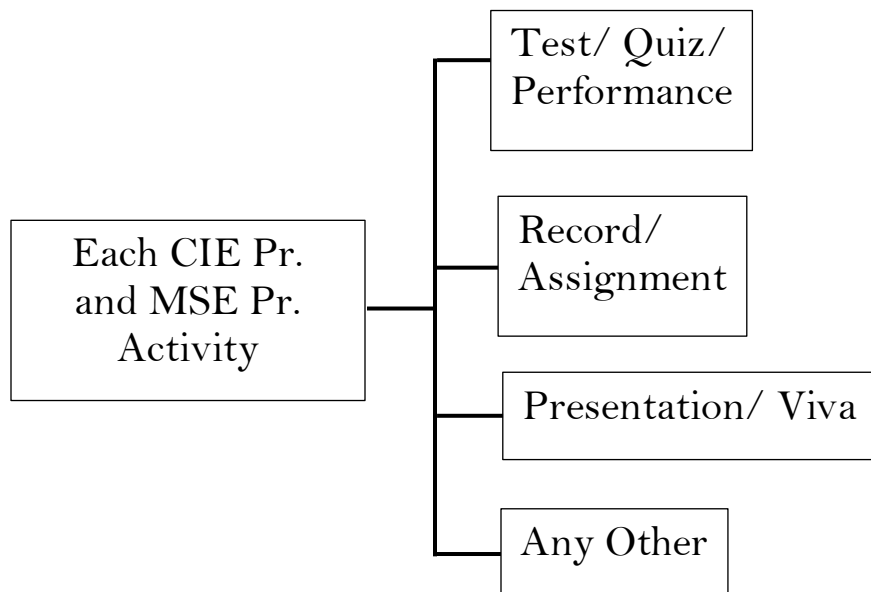
### Minimum Passing Percentage in All Exams:

S. No.	Program	Minimum Passing Percentage in All Exam	
		ESE Component	Total Component
1	Course Work for Ph. D Registration	-----	50 %
2	B. Arch.	45 %	50 %
3	MBA, MHA, MPH, MCA, M. Tech., M. Plan. and M. Des.	40 %	40 %
4	B. Tech., B. Des., BCA, B.Sc., BVA, B. Voc., BBA, B.Com., B.A. and Diploma	35 %	40 %
5	B. Sc. (Hospitality & Hotel Administration)	35 %	40 % (Theory) & 50 % (Practical)

### Break-up of Internal Exam (Theory):



**Break-up of Internal Exam (Practical):**



**Assessment & Grade Point Average: SGPA, CGPA:**

**SGPA Calculation**

$$SGPA = \frac{C_1G_1 + C_2G_2 + \dots + C_nG_n}{C_1 + C_2 + \dots + C_n}$$

$SGPA = \frac{\sum_i C_i \times G_i}{\sum_i C_i}$	<p>Where ( as per teaching Scheme &amp; Syllabus) :</p> <p><math>C_i</math> is the number of Credits of Courses <math>i</math>,</p> <p><math>G_i</math> is the Grade Point for the Course <math>i</math> and <math>i = 1, 2, \dots, n</math></p> <p><math>n</math> = number of courses in a programme in the Semester</p>
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**CGPA Calculation**

$$CGPA = \frac{C_1G_1 + C_2G_2 + \dots + C_nG_n}{C_1 + C_2 + \dots + C_n}$$

$CGPA = \frac{\sum_i C_i \times G_i}{\sum_i C_i}$	<p>Where ( as per teaching Scheme &amp; Syllabus) :</p> <p><math>C_i</math> is the number of Credits of Courses <math>i</math>,</p> <p><math>G_i</math> is the Grade Point for the Course <math>i</math> and <math>i = 1, 2, \dots, n</math></p> <p><math>n</math> = number of courses in a programme of all the Semester up to which CGPA is computed.</p>
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## Grading Table:

**Grading Table-A: For B.Arch. and course work for Ph.D. Registration**

Academic Performance	Grade	Grade Point	Marks Range ( in %)
Outstanding	A+	10	$90 \leq x \leq 100$
Excellent	A	9	$80 \leq x < 90$
Very good	B+	8	$70 \leq x < 80$
Good	B	7	$60 \leq x < 70$
Average	C	6	$50 \leq x < 60$
Fail	F	0	$x < 50$

**Grading Table-B: For all courses except B.Arch. and course work for Ph.D. Registration**

Academic Performance	Grade	Grade Point	Marks Range ( in %)
Outstanding	A+	10	$90 \leq x \leq 100$
Excellent	A	9	$80 \leq x < 90$
Very good	B+	8	$70 \leq x < 80$
Good	B	7	$60 \leq x < 70$
Average	C	6	$50 \leq x < 60$
Satisfactory	D	5	$40 \leq x < 50$
Fail	F	0	$x < 40$

*Calculation of SGPA*

$$SGPA = \frac{\sum C_i \times G_i}{\sum C_i}$$

$$SGPA = \frac{C_1G_1 + C_2G_2 + \dots + C_nG_n}{C_1 + C_2 + \dots + C_n}$$

*Calculation of CGPA*

$$CGPA = \frac{\sum C_i \times G_i}{\sum C_i}$$

$$CGPA = \frac{C_1G_1 + C_2G_2 + \dots + C_nG_n}{C_1 + C_2 + \dots + C_n}$$

where (as per teaching scheme & syllabus):  $C_i$  is the number of credits of subject  $i$ ,  $G_i$  is the Grade Point for the subject  $i$  and  $i = 1$  to  $n$ ,  $n$  = number of subjects in a course in the semester

## Award of Class:

CGPA	Equivalent Division
$7.50 \leq CGPA$	First Division with Distinction
$6.50 \leq CGPA < 7.50$	First Division
$5.50 \leq CGPA < 6.50$	Second Division
$4.50 \leq CGPA < 5.50$	Pass Class

The multiplication factor for conversion of CGPA to percentage is Equivalent % of Marks =  $(CGPA - 0.5) \times 10$ .

For Example if CGPA = 5.5 then % is  $(5.5 - 0.5) \times 10 = 50\%$ .

## **Guidelines for MOOC COURSES:**

1. Applicable from the session 2020 – 21 onwards, for students aspiring for HONOURS Degree.
2. The UGC has issued UGC (Credit Framework for Online Learning Courses) Regulation, 2016. These shall apply to all universities established or incorporated by or under a Central Act, a Provincial Act, or a State/Union Territory Act and all institutions recognized by or affiliated to such Universities and all institutions deemed to be universities under Section 3 of the UGC Act, 1956.
3. All India Council for Technical Education (AICTE) has introduced Model Curriculum for Bachelor programs of 4 years/ 3 Years, and additional credits will be required to be done for the degree of Bachelor program with Honors. These additional credits will have to be acquired with online courses (MOOCs) as per AICTE.
4. This creates an excellent opportunity for students to acquire the necessary skill set for employability through massive online courses where the rare expertise of world famous experts from academics and industry are available.
5. Students are required to complete additional credits through MOOCs within 4 years/ 3years of time (whatever be applicable time for the completion of registered program) so as to become eligible for Honours degree as per norms.
6. It is necessary to complete minimum MOOCs credit course as mentioned below for becoming eligible for the Honours degree in the registered program.
7. MOOC Course Credits shall be calculated as per details given below:
8. Student are required to give the prior information about MOOCs courses to his respective HOD and COE, in which he/she wants to register for online certification.
9. After getting permission from respective HOD, a student can register for the MOOC certification courses.
10. After successful completion of the said MOOC course, the student shall submit the certificate of completion to the respective department. If he/ she fails to provide the certificates of MOOC courses before last teaching day of the semester then these certificates will not be considered later.

**Required credits:**

S.No	Program Duration	Required credits
1.	2- Year	10- Credits
2.	3- Year	15- Credits
3.	4- Year	20- Credits

S. No	NPTEL/ SWAYAM Course duration (in weeks)	Equivalent Credits
1	4	2
2	8	3
3	12	4

**Attached Items:**

Open Elective Booklet	Annexure-1
Soft Skills Booklet	Annexure-2
Value Added Course Booklet	Annexure-3

**POORNIMA UNIVERSITY**

**SCHOOL OF DESIGN & ARTS**

**Name of Program: BS.C Animation & VFX**

**Batch: 2022-25**

**Teaching Scheme for Year: I**

**Semester: I**

Course Code	Course Name	Teaching Scheme (Hrs. per Week)			Marks Distribution			Credits
		Lecture (L)	Tutorials (T)	Practical (P)	IE	ESE	Total	
<b>A.</b>	<b>University Core Courses</b>							
<b>A.1</b>	<b>Theory</b>							
<b>BULCSA1101</b>	Environmental Studies	2	-	-	40	60	100	2
<b>A.2</b>	<b>Practical</b>							
	NIL	-	-	-	-	-	-	-
<b>B.</b>	<b>Department Core Courses</b>							
<b>B.1</b>	<b>Theory</b>							
<b>BSBCSB1101</b>	Fundamentals of Design	2	-	-	40	60	100	2
<b>BSBCSB1102</b>	Story Design and development	2	-	-	40	60	100	2
<b>B.2</b>	<b>Practical</b>							
<b>BSBCSB1201</b>	Foundation Art I	-	-	4	60	40	100	2
<b>BSBCSB1202</b>	Digital Art I	1	-	2	60	40	100	2
<b>BSBCSB1203</b>	2D Digital Animation-I	1	-	4	60	40	100	3
<b>BSBCSB1204</b>	3D Lab I	1	-	4	60	40	100	3
<b>C.</b>	<b>Department Elective:</b>							
	NIL	-	-	-	-	-	-	-
<b>D.</b>	<b>Open Elective:</b>							
	NIL	-	-	-	-	-	-	-
<b>E.</b>	<b>Humanities and Social Sciences including Management courses OR Ability Enhancement Compulsory Course (AECC)</b>							
<b>BULCHU1201</b>	Foundation English	-	-	2	60	40	100	1
<b>BULCHU1202</b>	Language Lab	-	-	2	60	40	100	1
<b>F.</b>	<b>Skill Enhancement Courses (SEC) OR Project work, Seminar, and Internship in Industry or Elsewhere</b>							
<b>BSBCSB1301</b>	Minor Project-I	-	-	6	60	40	100	3
<b>G.</b>	<b>Discipline, Value Added Courses &amp; Social Outreach</b>							
<b>BSBCSB1601</b>	Discipline, Value Added Courses & Social Outreach							
	Talent Enrichment Programme (TEP)-I	-	-	-	50	-	50	1
	Library / MOOC / Online Certification Courses							
	<b>Total</b>	<b>09</b>	<b>-</b>	<b>24</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>22</b>
	<b>Total Teaching Hours</b>	<b>33</b>						

**POORNIMA UNIVERSITY**  
**SCHOOL OF DESIGN & ARTS**

**Name of Program: BS.C Animation & VFX**

**Batch: 2022-25**

**Teaching Scheme for Year: I**

**Semester: II**

Course Code	Course Name	Teaching Scheme (Hrs. per Week)			Marks Distribution			Credits
		Lecture (L)	Tutorials (T)	Practical (P)	IE	ESE	Total	
<b>A.</b>	<b>University Core Courses</b>							
<b>A.1</b>	<b>Theory</b>							
	NIL	-	-	-	-	-	-	-
<b>A.2</b>	<b>Practical</b>							
	NIL	-	-	-	-	-	-	-
<b>B.</b>	<b>Department Core Courses</b>							
<b>B.1</b>	<b>Theory</b>							
<b>BSBCSB2101</b>	History And Evolution Of Animation	2	-	-	40	60	100	2
<b>BSBCSB2102</b>	UI UX Design	2	-	-	40	60	100	2
<b>B.2</b>	<b>Practical</b>							
<b>BSBCSB2201</b>	Foundation Art II	-	-	4	60	40	100	2
<b>BSBCSB2202</b>	Photography	1	-	2	60	40	100	2
<b>BSBCSB2203</b>	2D Digital Animation II	1	-	4	60	40	100	3
<b>BSBCSB2204</b>	3D Lab II	1	-	4	60	40	100	3
<b>C.</b>	<b>Department Elective:</b>							
	NIL	-	-	-	-	-	-	-
<b>D.</b>	<b>Open Elective:</b>							
	As per Annexure 1	2	-	-	60	40	100	2
<b>E.</b>	<b>Humanities and Social Sciences including Management courses OR Ability Enhancement Compulsory Course (AECC)</b>							
<b>BULCHU2201</b>	Communication Skills-I	-	-	2	60	40	100	1
<b>BULCHU2202</b>	Communication Skills-II	-	-	2	60	40	100	1
<b>F.</b>	<b>Skill Enhancement Courses (SEC) OR Project work, Seminar and Internship in Industry or Elsewhere</b>							
<b>BSBCSB2301</b>	Minor Project-II	-	-	6	60	40	100	3
<b>G.</b>	<b>Discipline, Value Added Courses &amp; Social Outreach</b>							
<b>BSBCSB2601</b>	Discipline, Value Added Courses & Social Outreach							
	Talent Enrichment Programme (TEP)-I	-	-	-	50	-	50	1
	Library / MOOC / Online Certification Courses							
	<b>Total</b>	<b>09</b>	<b>-</b>	<b>24</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>22</b>
	<b>Total Teaching Hours</b>	<b>33</b>						

POORNIMA UNIVERSITY								
SCHOOL OF DESIGN & ARTS								
Name of Program: BS.C Animation & VFX					Batch: 2022-25			
Teaching Scheme for Year: II					Semester: III			
Course Code	Course Name	Teaching Scheme (Hrs. per Week)			Marks Distribution			Credits
		Lecture (L)	Tutorials (T)	Practical (P)	IE	ESE	Total	
<b>A.</b>	<b>University Core Courses</b>							
<b>A.1</b>	<b>Theory</b>							
	<b>NIL</b>	-	-	-	-	-	-	-
<b>A.2</b>	<b>Practical</b>							
	<b>NIL</b>	-	-	-	-	-	-	-
<b>B.</b>	<b>Department Core Courses</b>							
<b>B.1</b>	<b>Theory</b>							
<b>BSBCSB3101</b>	<b>Film Appreciation and Analysis</b>	2	-	-	40	60	100	2
<b>BSBCSB3102</b>	<b>History of VFX</b>	2	-	-	40	60	100	2
<b>BSBCSB3103</b>	<b>Cinematography</b>	2	-	-	40	60	100	2
<b>B.2</b>	<b>Practical</b>							
<b>BSBCSB3201</b>	<b>Preproduction I</b>	1	-	2	60	40	100	2
<b>BSBCSB3202</b>	<b>3D Animation I</b>	1	-	4	60	40	100	3
<b>BSBCSB3203</b>	<b>Editing &amp; Sound Design Lab</b>	-	-	2	60	40	100	1
<b>BSBCSB3203</b>	<b>Character Design Concepts-I</b>	-	-	4	60	40	100	2
<b>C.</b>	<b>Department Elective: Anyone</b>							
<b>BSBESB3211</b>	<b>Motion Graphics</b>							
<b>BSBESB3212</b>	<b>3D Dynamics and Simulation</b>	-	1	4	60	40	100	2
<b>D.</b>	<b>Open Elective:</b>							
	As per annexure- I	2	-	-	60	40	100	2
<b>E.</b>	<b>Humanities and Social Sciences including Management courses OR Ability Enhancement Compulsory Course (AECC)</b>							
<b>BULCHU3201</b>	<b>Human values &amp; professional ethics</b>	-	-	2	40	60	100	1
<b>F.</b>	<b>Skill Enhancement Courses (SEC) OR Project work, Seminar and Internship in Industry or Elsewhere</b>							
<b>BSBCSB3301</b>	<b>Minor Project III</b>	-	-	6	60	40	100	3
<b>G.</b>	<b>Discipline, Value Added Courses &amp; Social Outreach</b>							
<b>BSBCSB3601</b>	Discipline, Value Added Courses & Social Outreach							
	Talent Enrichment Programme (TEP)-I	-	-	-	50	-	50	1
	Library / MOOC / Online Certification Courses							
	<b>Total</b>	<b>10</b>	<b>0</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>23</b>
	<b>Total Teaching Hours</b>	<b>33</b>						



**POORNIMA UNIVERSITY**  
**SCHOOL OF DESIGN & ARTS**

**Name of Program: BS.C Animation & VFX**

**Batch: 2022-25**

**Teaching Scheme for Year: II**

**Semester: IV**

Course Code	Course Name	Teaching Scheme (Hrs. per Week)			Marks Distribution			Credits
		Lecture (L)	Tutorials (T)	Practical (P)	IE	ESE	Total	
<b>A.</b>	<b>University Core Courses</b>							
<b>A.1</b>	<b>Theory</b>							
	NIL	-	-	-	-	-	-	-
<b>A.2</b>	<b>Practical</b>							
	NIL	-	-	-	-	-	-	-
<b>B.</b>	<b>Department Core Courses</b>							
<b>B.1</b>	<b>Theory</b>							
<b>BSBCSB4102</b>	<b>Game Design Concepts</b>	2	-	-	40	60	100	2
<b>BSBCSB4103</b>	<b>Studio Design &amp; Project Management</b>	2	-	-	40	60	100	2
<b>B.2</b>	<b>Practical</b>							
<b>BSBCSB4201</b>	<b>Pre-Production II</b>	1	-	2	60	40	100	2
<b>BSBCSB4202</b>	<b>3D Animation II</b>	1	-	4	60	40	100	3
<b>BSBCSB4203</b>	<b>Compositing Techniques</b>	1	-	2	60	40	100	2
<b>BSBCSB4204</b>	<b>Lighting &amp; Rendering</b>	1	-	4	60	40	100	3
<b>BSBCSB4205</b>	<b>Character Design Concepts-II</b>	1	-	2	60	40	100	2
<b>C.</b>	<b>Department Elective:</b>							
	NIL	-	-	-	-	-	-	-
<b>D.</b>	<b>Open Elective:</b>							
	<b>As per Annexure 1</b>	2	-	-	60	40	100	2
<b>E.</b>	<b>Humanities and Social Sciences including Management courses OR Ability Enhancement Compulsory Course (AECC)</b>							
<b>BULCHU4201</b>	<b>Leadership &amp; Management Skills</b>	-	-	2	60	40	100	1
<b>F.</b>	<b>Skill Enhancement Courses (SEC) OR Project work, Seminar and Internship in Industry or Elsewhere</b>							
<b>BSBCSB4301</b>	<b>Major Project</b>	-	-	6	60	40	100	3
<b>G.</b>	<b>Discipline, Value Added Courses &amp; Social Outreach</b>							
<b>BSBCSB4601</b>	Discipline, Value Added Courses & Social Outreach	-	-	-	50	-	50	1
	Talent Enrichment Programme (TEP)-I							
	Library / MOOC / Online Certification Courses							
	<b>Total</b>	<b>11</b>	<b>0</b>	<b>22</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>23</b>
	<b>Total Teaching Hours</b>		<b>33</b>					

POORNIMA UNIVERSITY								
SCHOOL OF DESIGN & ARTS								
Name of Program: BS.C Animation & VFX					Batch: 2022-25			
Teaching Scheme for Year: III					Semester: V			
Course Code	Course Name	Teaching Scheme (Hrs. per Week)			Marks Distribution			Credits
		Lecture (L)	Tutorials (T)	Practical (P)	IE	ESE	Total	
<b>A.</b>	<b>University Core Courses</b>							
A.1	Theory							
	NIL	-	-	-	-	-	-	-
A.2	Practical							
	NIL	-	-	-	-	-	-	-
<b>B.</b>	<b>Department Core Courses</b>							
B.1	Theory							
BSBCSB5101	Augmented reality and Virtual reality	2	-	-	60	40	100	2
B.2	Practical							
BSBCSB5202	Advanced Visual Design	1	-	4	60	40	100	3
BSBCSB5203	Portfolio	1	-	4	60	40	100	3
<b>C.</b>	<b>Department Elective: Anyone</b>							
BSBESB5211	Advanced 3D Animation & Rigging							
BSBESB5212	Advanced Modeling and Texturing							
BSBESB5213	Advanced 2D Animation		5	10	60	40	100	5
BSBESB5214	Advanced VFX Compositing							
<b>D.</b>	<b>Open Elective:</b>							
	NIL	-	-	-	-	-	-	-
<b>E.</b>	<b>Humanities and Social Sciences including Management courses OR Ability Enhancement Compulsory Course (AECC)</b>							
BULCHU5201	Leadership & Management Skills	-	-	2	60	40	100	1
<b>F.</b>	<b>Skill Enhancement Courses (SEC) OR Project work, Seminar, and Internship in Industry or Elsewhere</b>							
BSBCSB5401	Practical Training Seminar (PTS)	-	-	8	60	40	100	4
<b>G.</b>	<b>Discipline, Value Added Courses &amp; Social Outreach</b>							
BSBCSB5601	Discipline, Value Added Courses & Social Outreach							
	Talent Enrichment Programme (TEP)-I	-	-	1	50	-	50	1
	Library / MOOC / Online Certification Courses							
	<b>Total</b>	<b>04</b>	<b>0</b>	<b>29</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>19</b>
	<b>Total Teaching Hours</b>	<b>33</b>						

POORNIMA UNIVERSITY								
SCHOOL OF DESIGN & ARTS								
Name of Program: BS.C Animation & VFX					Batch: 2022-25			
Teaching Scheme for Year: III					Semester: VI			
Course Code	Course Name	Teaching Scheme (Hrs. per Week)			Marks Distribution			Credits
		Lecture (L)	Tutorials (T)	Practical (P)	IE	ESE	Total	
A.	University Core Courses							
A.1	Theory							
	NIL	-	-	-	-	-	-	-
A.2	Practical							
	NIL	-	-	-	-	-	-	-
B.	Department Core Courses							
B.1	Theory							
	NIL	-	-	-	-	-	-	-
B.2	Practical							
C.	Department Elective: At least One							
	NIL	-	-	-	-	-	-	-
D.	Open Elective: Anyone							
	NIL	-	-	-	-	-	-	-
E.	Humanities and Social Sciences including Management courses OR Ability Enhancement Compulsory Course (AECC)							
	NIL	-	-	-	-	-	-	-
F.	Skill Enhancement Courses (SEC) OR Project work, Seminar and Internship in Industry or Elsewhere							
BSBESB6501	Internship	-	-	-	60	40	100	6
G.	Discipline, Value Added Courses & Social Outreach							
BSBESB6601	Discipline, Value Added Courses & Social Outreach							
BSBESB6602	Talent Enrichment Programme (TEP)-I	-	-	-	50	-	50	1
BSBESB6603	Library / MOOC / Online Certification Courses							
	<b>Total</b>	-	-	-	-	-	-	7
	<b>Total Teaching Hours</b>							

# DETAILED SYLLABUS FOR FIRST SEMESTER

CODE: BULCSA1101

ENVIRONMENTAL STUDIES

2 CREDITS [LTP: 2-0-0]

**COURSE OUTCOME:** Students will be able:

**CO1:** To analyze the scope of environmental studies and explain the concept of ecology, ecosystem and biodiversity.

**CO2:** To implement innovative ideas of controlling different categories of Environmental Pollution.

**CO3:** To explain different environmental issues together with various Environmental Acts, regulations and International Agreements.

**CO4:** To summarize social issues related to population, resettlement and rehabilitation of project affected persons and demonstrate disaster management with special reference to floods, earthquakes, cyclones, landslides.

**CO5:** To determine the local environmental assets with simple ecosystems and identify local flora and fauna.

## A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Introduction to environmental studies	5
2.	Environmental Pollution and its control	5
3.	Environmental Policies & Practices	5
4.	Human Communities and the Environment	5
5.	Field work	4

## B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Introduction to environmental studies</b>
	<ul style="list-style-type: none"><li>· Introduction of Unit</li><li>· Multidisciplinary nature of environmental studies</li><li>· Concept of sustainability and sustainable development.</li><li>· Ecosystem: Structure and function of ecosystem</li><li>· Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies</li><li>· Case studies of the following ecosystems: Forest ecosystem, Grassland ecosystem, Desert Ecosystem</li><li>· Aquatic ecosystems, Biodiversity and Conservation</li><li>· Conclusion of Unit including Real Life Application</li></ul>
2.	<b>Environmental Pollution and its control</b>
	<ul style="list-style-type: none"><li>· Introduction of Unit</li><li>· Environmental pollution: types, causes, effects, and controls; Air, water, soil and noise pollution</li><li>· Nuclear hazards and human health risks</li><li>· Solid waste management: Control measures of urban and industrial waste.</li><li>· Pollution case studies</li></ul>

	<ul style="list-style-type: none"> <li>· Conclusion of Unit including Real Life Application</li> </ul>
<b>3.</b>	<b>Environmental Policies &amp; Practices</b>
	<ul style="list-style-type: none"> <li>· Introduction of Unit</li> <li>· Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture</li> <li>· Energy resources: Renewable and non-renewable energy sources, use of alternate energy Sources, growing energy needs, case studies.</li> <li>· Environment Laws: Environment Protection Act; Air (Prevention &amp; Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act.</li> <li>· International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD)</li> <li>· Conclusion of Unit including Real Life Application</li> </ul>
<b>4.</b>	<b>Human Communities and the Environment</b>
	<ul style="list-style-type: none"> <li>· Introduction of Unit</li> <li>· Human population growth: Impacts on environment, human health and welfare.</li> <li>· Resettlement and rehabilitation of project affected persons; case studies.</li> <li>· Disaster management: floods, earthquake, cyclones and landslides.</li> <li>· Conclusion of Unit including Real Life Application</li> </ul>
<b>5.</b>	<b>Field work</b>
	<ul style="list-style-type: none"> <li>· Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.</li> <li>· Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.</li> <li>· Study of common plants, insects, birds and basic principles of identification.</li> <li>· Study of simple ecosystems-pond, river, Delhi Ridge, etc.</li> </ul>

#### A. RECOMMENDED STUDY MATERIAL

Sr. No	Reference Book	Author	Edition	Publication
1	Environmental Studies	Erach Barucha	Latest	UGC
2	Environmental Studies	Benny Joseph	Latest	Tata McgrawHill
3	Environmental Studies	R. Rajagopalan	Latest	Oxford University Press
4	Principles of Environmental Science and Engineering	P. Venugoplan Rao	Latest	Prentice Hall of India.
5	Environmental Science and Engineering	P. Meenakshi	Latest	Prentice Hall India.
<b>Important Web Links</b>				
1	<a href="http://www.energy.gov">http://www.energy.gov</a>			
2	<a href="https://nptel.ac.in/courses/122102006/">https://nptel.ac.in/courses/122102006/</a>			

**OBJECTIVE OF THE COURSE:**

To enable a student to develop the ability to:

- Create, document and preserve an original body of graphic design work;
- To be able to think and communicate critically about the his/her own work
- Continuously reflect on one's own work in terms of elements and principles of graphic design;
- Monitor and assess one's creative abilities over a period of time through the designs produced;
- Identify one's own strengths and weaknesses in creating works of graphic design.

**OUTCOME OF THE COURSE:**

- A. The subject aims to impart knowledge of principles behind fundamentals of Design
- B. To understand the language of Visual Communication
- C. To be able to apply elements of design into any creation
- D. To analyse the principles of design.
- E. To evaluate Role of Design in Society

**F. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	<b>Introduction and History of Design</b>	6
2.	<b>Visual Communication</b>	8
3.	<b>Elements of design</b>	8
4.	<b>Principles of Design</b>	8
5.	<b>Role of Design in Society</b>	6

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Introduction and History of Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• History</li> <li>• Forms of design</li> <li>• Art and design</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Visual Communication</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Semantics and Secondary research</li> <li>• Pragmatics and syntactic</li> <li>• Case study</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Elements of design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Line, Shape, Volume,</li> <li>• Colour, value, Texture</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>Principles of Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Gestalt Law's for art and design</li> <li>• The Design process</li> <li>• Conclusion of Unit</li> </ul>
5.	<b>Role of Design in Society</b>

- Introduction of Unit
- Poster design as Social Commentary
- Propaganda design: USA, German, Soviet.
- Designing for society
- Conclusion of Unit

**C. RECOMMENDED STUDY MATERIAL:**

Sr.No	Reference Book	Author	Publication
1.	Universal Principles of Design	William Lidwell Kritina -Holden Jill Butler	Latest
	Handbook of Visual Communication: Theory, Methods and Media	Ken Smith Sandra Moriarty Gretchen Barbatsis Keith Kenney	Latest

**OBJECTIVE OF THE COURSE:**

This subject lay the foundation for story visualization. It enables ones to create script out of stories and understand different narrative modes and their mediums along films.

**OUTCOME OF THE COURSE:**

- A. The subject aims to impart knowledge of Understanding Story
- B. To understand the development of story narratives
- C. To be able to apply the story to script.
- D. To analyse the graphic narratives
- E. To evaluate Role of Graphic narrative

**F. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Understanding Story	8
2	Story Narratives and its Development	8
3	Story to Script	7
4	Graphic Narratives	11
5	Case study in Graphic Narratives	2

**B. DETAILED SYLLABUS**

Unit	Unit Details
<b>1.</b>	<b>Understanding Story</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Resources and ideas from life</li> <li>• Understanding Story from Literature and Films.</li> <li>• Examining indigenous narratives, both contemporary and traditional to gain an understanding of storytelling methods pertinent to our culture.</li> <li>• Linear &amp; non linear storytelling</li> <li>• Imagery building :Visual association to the narration - To know about the form in which the story is told</li> <li>• Conclusion of Unit.</li> </ul>
<b>2.</b>	<b>Story Narratives and its Development</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Narrative: Introduction to narrative structures (Indian and Western)</li> <li>• Modes of Narrative</li> <li>• Plot &amp; Character: Action Plots &amp; Mind Plots. Analysis of different types of plots, Developing Characters, Storytelling and it relevance in society- character driven stories – Event driven stories.</li> <li>• Archetypes v/s Stereotypes - understanding of archetypes and a brief introduction to the monomyth (hero's journey).</li> <li>• Conclusion of Unit.</li> </ul>
<b>3.</b>	<b>Story to Script</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Content, frameworks, and contexts, Script Styles,</li> <li>• Submission Scripts, and Shooting Scripts,</li> <li>• Specific Screenplays- Page Properties and Script Length</li> <li>• Script - interpretation and visualization for animated films.</li> <li>• Conclusion of Unit.</li> </ul>
<b>4.</b>	<b>Graphic Narratives</b>



	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• History of Graphic Narratives - Indian, Eastern and Western</li> <li>• Elements of Graphic Narrative Design – Framing, Composition, Color, visual allusion, style and meaning, cultural context, text and image, etc.</li> <li>• Expressing simple to complex visualization for different Genre stories like – social, personal, science fictions, action comics, History and Fantasy through the use of Graphic Narratives.</li> <li>• Conclusion of Unit.</li> </ul>
<b>5.</b>	<b>Case study in Graphic Narratives</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Illustrating for– News paper- Magazines, Text books, Gag cartoons – Editorials</li> <li>• Comic on Internet - Motion Comics.</li> <li>• Conclusion of Unit.</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr.No	Reference Book	Author	Publication
1.	Story: Substance, Structure, Style and The Principles of Screenwriting	Robert McKee	1997
2.	Animation from script to screen	Shamus Culhane	1990
3.	Animation Writing and Development	Jean Ann Wright	2005
4.	Ideas for the Animated short- Finding and building stories	Karen Sullivan, Gary Schumer, Kate Alexander	2008
5.	Graphic Storytelling and Visual Narrative	Eisner Will	2008
6.	Framed Ink - Drawing & Composition for Visual Storytellers	Marcos Mateu-Mestre	2010
7.	Understanding Comics	Scott McCloud	1993
8.	Otomo Katsuhiro, Tezuka Osamu, The Art of Osamu Tezuka: God of Manga	McCarthy Helen	2009

**OBJECTIVE OF THE COURSE:**

This course enables the students to learn the medium of Drawing and its importance in visualization. This course allow student to learn to observe, analyze and visualize. Course allow the student to practice drawing to support the future Animation Design.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of drawing.
2. To understand drawing from nature
3. To be able to apply perspective drawing.
4. To analyse the lighting and shading
5. To understand basic proportions in figure drawing

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Introduction to drawing materials	10
2	Drawing from Nature	20
3	Perspective drawing	15
4	Lighting & Shading	15
5	Figure Drawing	12

**B. DETAILED SYLLABUS**

Unit	Unit Details
1	<b>Introduction to drawing materials</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Papers-Different pencils.</li> <li>• Colours pencils-Crayons and poster colours.</li> <li>• Introduction to drawing the objects, figures from surroundings.</li> <li>• To learn, observation, analysing and drawing the mechanical objects, utensils, and objects from everyday life.</li> <li>• Conclusion of Unit</li> </ul>
2	<b>Drawing from Nature</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Location drawing and learning to represent trees, plants, bushes, shrubs, insects, birds, and animals with attention to structure and morphology, proportion, volume, and behaviour.</li> <li>• Dramatizing what has been recorded</li> <li>• Conclusion of Unit</li> </ul>
3	<b>Perspective drawing</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• To learn the importance of Perspective</li> <li>• Rules of perspectives – To learn one point – two point perspectives- Learn to draw from different eye levels and different angles.</li> <li>• Conclusion of Unit</li> </ul>
4	<b>Lighting &amp; Shading</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• To introduce to the concept of light in visualization.</li> <li>• To study objects in Lighting and learn to draw them with proper shading</li> <li>• Drawing figures/ sketching figures from live Drawing plants, trees, flowers, fruits</li> <li>• Conclusion of Unit</li> </ul>
5	<b>Figure Drawing</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Introduction to Figure Drawing</li> <li>• Learning Stick Figures</li> <li>• Practice with Lines and Stick Figures</li> <li>• Mannequin Drawings</li> <li>• Drawing Figures in Blocks</li> <li>• Drawings from different eye-levels.</li> <li>• Basic Anatomical Study</li> </ul>

- Creative Forms of Aliens with Balanced Anatomy;
- Conclusion of Unit

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr.No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1.	Perspective Drawing Handbook	Joseph D'Amelio	Latest
2.	Fun with the Pencil	Loomis	Latest
3.	Dynamic Figure Drawing	Burne Hogarth	Latest
4.	Complete Book of Drawing Technique	Peter Stanyer	Latest

**OBJECTIVE OF THE COURSE:**

The purpose of this subject is to provide the students with training methodologies and specific industry skills that will assist them in developing creative ideas into digital art with emphasis on image manipulation, matte painting and image creation and editing. The students will receive information that will enable them to:

- Understand the design principles used in creation of digital art.
- Familiarize with the terminologies and concepts for creating and manipulating digital images.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of theories of perception
2. To understand the Digital Tools, Hardware for Digital Painting
3. To understand raster and vector graphic tools.
4. To apply the tools in creating digital art
5. To evaluate different tools for digital art

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	<b>Theories of Perception</b>	8
2.	<b>Digital Tools, Hardware for Digital Painting</b>	8
3.	<b>Introduction to Raster Graphics Tools</b>	12
4.	<b>Introduction to Vector Graphics Tools</b>	12
5.	<b>Applications</b>	8

**B. DETAILED SYLLABUS**

Unit	Unit Details
1	<b>Theories of Perception</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Understanding light: Electromagnetic spectrum, CMYK and RGB</li> <li>• Analog vs Digital</li> <li>• Conclusion of Unit</li> </ul>
2	<b>Digital Tools, Hardware for Digital Painting</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Image Format and Colour Representations</li> <li>• Image and File Formats</li> <li>• File Compressions.</li> <li>• Properties of Bitmap Image.</li> <li>• Resolutions for Print and Display, Digital colour Representation.</li> <li>• Conclusion of Unit</li> </ul>
3	<b>Introduction to Raster Graphics Tools</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Layers</li> <li>• Adjustment Tools</li> <li>• Painting</li> <li>• Creating raster artworks.</li> </ul>

	<ul style="list-style-type: none"> <li>• Image Manipulation.</li> <li>• Colour Manipulation.</li> <li>• Layer Blending, Masking, Export Parameters.</li> <li>• Conclusion of Unit</li> </ul>
<b>4</b>	<b>Introduction to Vector Graphics Tools</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Creating Vector Arts</li> <li>• Paths and Shapes</li> <li>• Vector brushes and colours</li> <li>• Layers, Transparency, Grouping, Blending Modes, Managing Artwork, Single and Multipage Illustrations.</li> <li>• Conclusion of Unit</li> </ul>
<b>5</b>	<b>Applications</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Digital Painting</li> <li>• Images Restoration</li> <li>• Images manipulation and collages</li> <li>• Vector Art – Graphics and Illustrations</li> <li>• Print and Web graphics</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr.No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
<b>1</b>	Best Practices for Graphic Designers : Colour Works	Eddie Opara John Cantwell	Rockport Publishers (1 January 2014)
<b>2</b>	Design Elements, Typography Fundamentals: A Graphic Style Manual for Understanding How Typography Affects Design	Kristin Cullen	Rockport Publishers (1 June 2012)
<b>3</b>	Grid Systems in Graphic Design: "A Visual Communication Manual for Graphic Designers, Typographers and Three Dimensional Designers"	Josef Muller-Brockmann	Antique Collectors Club; Bilingual edition (1 January 1999)

**OBJECTIVE OF THE COURSE:** This course imparts the knowledge of the nitty gritty and nuances of Animation. The tools and techniques that used to do traditional, experimental or 2D digital animation are all compiled as exercises which will enable the students to discover the art of motion. It also emphasises on the workflow to create 2D Digital Animation and managing scenes for animation production.

**OUTCOME OF THE COURSE:**

- A. The subject aims to impart knowledge of History of Animation Techniques.
- B. To understand the Animation Fundamental – Time and Space.
- C. To be able to apply the Animation Fundamental – Principles.
- D. To analysis Experiment in Animation.
- E. To create and export scene into Final Movie.

**F. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	<b>History of Animation Techniques</b>	8
2.	<b>Animation Fundamental I – Time and Space</b>	12
3.	<b>Animation Fundamental II – Principles</b>	20
4.	<b>Experiments in Animation</b>	18
5.	<b>Export Movie</b>	2

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>History of Animation Techniques</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• History of animation: Cave paintings</li> <li>• Animation toys - Building Animation toys –Thaumatrope -Phenakistoscope –</li> <li>• Shadow puppetry, Magic lantern.</li> <li>• Flip Book</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Animation Fundamental I – Time and Space</b>
	<ul style="list-style-type: none"> <li>• Introduction to FPS, usage and importance of Frame by Frame.</li> <li>• Understanding different rhythms of animation</li> <li>• Executing straight ahead ,pose to pose and limited animation</li> <li>• Drawing key frames, breakdowns, in-betweens, animation cycles</li> <li>• Exercise on Timing and Spacing (Ball Bounce)</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Animation Fundamental II – Principles</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Timing</li> <li>• Squash and Stretch</li> <li>• Anticipation</li> <li>• Follow-Through</li> <li>• Overlapping Action</li> <li>• Arcs</li> <li>• Ease-In and Ease-Out</li> <li>• Exaggeration</li> </ul>

	<ul style="list-style-type: none"> <li>• Staging</li> <li>• Solid Drawing</li> <li>• Appeal</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Experiments in Animation</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Understanding the 3 methods of animation –</li> <li>• Frame by Frame creation of animation - traditional 2D, Pixilation, Stop Motion</li> <li>• Modification of object or image to produce animation- paint on glass, sand on glass, simple Claymation without armatures etc.</li> <li>• Manipulation of objects to produce animation- 2D cut out animation, 3D Claymation with armatures, simple object animation, Puppets, etc.</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Export Movie</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• File Management</li> <li>• Library Management</li> <li>• Workspace customization</li> <li>• Compressions.</li> <li>• Conclusion of Unit</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr.No	Book	Author	Publication
1.	The Animator's Survival Kit	Williams, Richard	Faber; 2009
2.	The Illusion of Life – Essays on Animation	Cholodenko, Alan	Power Publication in association with Australian Film Commission;1991
3.	Cartoon Animation by Preston Blair	Blair, Preston	Walter Foster Publishing;1994
4.	Action Analysis for Animators	Webster, Chris	Focal Press; 2012

**OBJECTIVE OF THE COURSE:**

This subject will provide an introduction to basic skills - Modelling/Texturing, lighting and rendering techniques in Autodesk Maya application. The below units would provide the skills necessary to create simple props, texture the props, do a simple lighting setup and understand the basics in Maya environment.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of History of Animation Techniques.
2. To understand the Animation Fundamental – Time and Space.
3. To be able to apply the Animation Fundamental – Principles.
4. To analysis Experiment in Animation.
5. To create and export scene into Final Movie.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Maya Basics	8
2	Modelling - layout	18
3	Lighting and Rendering	10
4	N-cloth for Modelling	6
5	Texturing	6

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Interface Basics</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• 2D v/s 3D</li> <li>• Basic 3D workspace introduction, Isometric views</li> <li>• Transformation tools, Basic Primitives</li> <li>• Project management</li> <li>• Duplicating and Instances.</li> <li>• Loading Image-planes</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Modelling</b>
	<ul style="list-style-type: none"> <li>• Introduction To Nurbs</li> <li>• Using EP, CV curves</li> <li>• Use Sculpt Geometry Tool</li> <li>• Props with Nurbs.</li> <li>• Converting NURBS to Polygons</li> <li>• Using Poly Editing Tools.</li> <li>• Exercise 1 – Layouts</li> <li>• Exercise 2 – Interiors</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Lighting and Rendering</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Study of real world lighting</li> <li>• Understanding Shading</li> <li>• Understanding Shadows</li> <li>• Analyse techniques used by Renaissance artists</li> <li>• Understanding 3 Point Lighting.</li> <li>• Using Maya Lights</li> <li>• Render Settings.</li> <li>• Conclusion of Unit</li> </ul>



<b>4.</b>	<b>N-Cloth</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Using N cloth to simulate a simple table sheet.</li> <li>• Adjusting properties</li> <li>• Using constraints to create and modify a curtain</li> <li>• Using properties to simulate different types of cloths and simulate pillows etc</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Texturing</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Understanding shading</li> <li>• Using different types of shaders</li> <li>• Controlling specular and reflection.</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	Maya 2008 Character Modelling and Animation: Principles and Practices	Tereza Flaxman	Latest
2	Advanced Maya Texturing and Lighting	Lee Lanier	Latest

**Course Outcomes:**

On successful completion of the course, the learners will be able to:

CO Cognitive Abilities Course Outcomes

**CO-01** Understanding/Applying/Creating Demonstrate the grammar skills involved in writing sentences and short paragraphs.

**CO-02** Understanding/ Applying Build up a good command over English grammar and vocabulary to be able trace error spotting.

**CO-03** Understanding/ Applying/Creating Define unknown words in sentence level context using a picture dictionary or by creating a memory link for support.

**CO-04** Understanding / Applying Understand, analyze and effectively use the conventions of the English language.

**CO-05** Understanding/Applying Develop their interest in reading and enhance their oral and silent reading skills along will sharpen their critical and analytical thinking.

NO.	UNIT NAME	Hours
1.	Basics of Grammar	6
2.	Spotting the grammatical errors and rectification	4
3.	Vocabulary Building	4
4.	Basics of Writing Skills	6
5.	Reading Comprehension	5

**LIST OF ACTIVITIES**

1. Parts of Speech: Theory & Practice through various Exercises
2. Sentence Structures: Theory & Practice through various Exercises
3. Tenses: Theory & Practice through various Exercises
4. Spotting the Errors: Applying the rules and Practice Questions
5. Vocabulary Building-I: Practice by sentence formation
6. Vocabulary Building-II: Practice by sentence formation
7. Paragraph Writing
8. Article Writing
9. Précis Writing
10. Formal & Informal Letter Writing
11. Reading Comprehension- I: Beginner's level reading and answering the Questions (Competitive Exams)
12. Reading Comprehension- II: Intermediate's level reading and answering the Questions (Competitive Exams)

**Course Outcomes:**

On successful completion of the course the learners will be able to

CO	Cognitive Abilities	Course Outcomes
CO-01	Understanding/ Applying/Creating	Understand the nuances of language through audio- visual experience and group activities.
CO-02	Understanding/ Applying	Neutralize the accent for intelligibility and develop confidence in speaking with clarity enhancing their employability skills.
CO-03	Understanding/ Applying/Creating	Demonstrate an understanding of grammatical structures in conversations and discussions.
CO-04	Understanding / Applying	Utilize the knowledge of confidence building strategies to manage one's own thoughts and emotions.
CO-05	Understanding/Applying	Identify the requirements of skills development and apply their learning to sharpen the same.

UNIT NO.	UNIT NAME	Hours
1	Introduction to Communication Skills on Learning Software	6
2	Concepts of Phonetics	4
3	Grammar Practice	6
4	Confidence Enhancement Activities	4
5	Skills Enhancement Activities	5

**LIST OF LABS**

1.	Listening Skills
2.	Reading Comprehension
3.	Writing Skills
4.	Phonetics I
5.	Phonetics II
6.	Grammar and Common Errors Usage
7.	Conversation
8.	Role Plays
9.	Presentation Skills I
10.	Presentation Skills II
11.	Group Discussion
12.	Interview Skills

## Software used in Language Lab: EL-Client

S.No.	Topics	Exercises
I	Listening Skills: Fourteen Lessons each containing five exercises	
II	Fundamental Language Skills: Introductory Lessons Basic Lessons (a) Reading Basic Lessons (a) Grammar Basic Lessons (a) Vocabulary Basic Lessons (a) Writing Basic Lessons (b)-(c) Reading Basic Lessons (b)-(c) Grammar Basic Lessons (b) Vocabulary Basic Lessons (b) Writing	5exercises 6exercises 3exercises 6exercises 5exercises 9exercises 9exercises 5exercises 3exercises
III	Communication Skills: Reading Comprehension Vocabulary Grammar Writing Exercises on Reading, Vocabulary, Grammar and Writing	
IV	Vocabulary: Word mentor: Various games based on the formation of words.	
V	Phonetics: Consonants Vowels Diphthongs Intonation Correct Pronunciation	
VI	English as Second Language	45exercises
VII	Conversations: Nine topics for conversations.	

- Neutralization of accent for intelligibility
- Speaking with clarity and confidence thereby enhancing employability skills of the students

**Group project on 2d / stop motion animation.**

Stop motion is a powerful animation technique that makes static objects appear to be moving. Creating stop motion draws attention to placement, framing, direction and speed of movement.

Types of stop motion techniques, hand drawing, cell, cut-paper, sand, and Claymation.

**OBJECTIVE OF THE COURSE:**

To Conceptualize and to generate stronger ideas, critical viewings of animation, and brainstorming and synthesis of ideas, Scripting and Storyboarding to visually plan out the entire animation.

**OUTCOME OF THE COURSE:**

Create an entire project from conceptualization, brainstorming and synthesis of ideas, Scripting and Storyboarding to visually plan out the entire animation using 2d/stop motion techniques.

**Project Guidelines:**

Selection of an area that needs explanation in time, Select a topic that fulfils the requirements of the project, Study material on the subject done by other animation filmmakers/ students and ensure that it is not visualized in the same manner, Comprehend the context of application, Visualize the idea in the form of a storyboard, Develop a technique to visualise, Animate the idea, Using effects, music, or voice will need discretion.

## DETAILED SYLLABUS FOR SECOND SEMESTER

**Code: BSBCSB2101**

**HISTORY AND EVOLUTION OF ANIMATION**

**2 Credits [LTP: 2-0-0]**

**OBJECTIVE OF THE COURSE:** History of Animation is part and parcel to Animation studies which eventually imparts sound knowledge of the field answering the What, When, Why and How of the discipline. It also prepares the student to form decisions based on the perceptual insights collected from Master Animators, Studios and Genre and become innovative thinkers to channelize Motion Arts.

### OUTCOME OF THE COURSE:

1. The subject aims to impart knowledge of History of Animation Techniques.
2. To understand the Animation Fundamental – Time and Space.
3. To be able to apply the Animation Fundamental – Principles.
4. To analysis Experiment in Animation.
5. To create and export scene into Final Movie.

### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Early Animation – Prehistoric to Silent Era	4
2	American and Canadian Animation – The Beginning of Studios	8
3	European Animation	8
4	Animation in Asia	8
5	The Electronic age	8

### B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Early Animation – Prehistoric to Silent Era</b>
	<ul style="list-style-type: none"> <li>• Motion in Art – Palaeolithic Age</li> <li>• Motion in Art – Sequential Art in Civilizations</li> <li>• Development of Motions arts in the Middle Ages (17<sup>th</sup> – 19<sup>th</sup> cent)</li> <li>• Early 20<sup>th</sup> cent Animations on Film.</li> <li>• The Silent era</li> </ul>
2.	<b>American Animation – The Beginning of Studios</b>
	<ul style="list-style-type: none"> <li>• Beginnings - Traditional 2D Animation</li> <li>• The Walt Disney Company – The Illusion of Life and The Nine Old Men of Disney</li> <li>• Golden Age of American Animation</li> <li>• The Television Era</li> <li>• Canada – National Film Board of Canada</li> <li>• South Americas – Brazilian, Argentinian and Cuban Animation</li> </ul>
3.	<b>European Animation</b>
	<ul style="list-style-type: none"> <li>• Pre and Post War Animation in Western Europe (Britain, France, Germany, Spain, Italy &amp; Denmark)</li> <li>• Pre and Post war Animation in Eastern Europe (Czech Republic, Zagreb School, Yugoslavia, Poland, Hungary and Romania)</li> <li>• USSR – Socialist Realism in Animation</li> <li>• Russian Folklores in Animation</li> </ul>
4.	<b>Animation in Asia</b>
	<ul style="list-style-type: none"> <li>• Iran – Animations of Nouredin Zarrinkelk, Ali Akbar Sadeghi, Farkhondeh Torabi, Marjane Satrapi</li> <li>• Pre – Post Independence Animation of India</li> <li>• Beginnings and reforms in Chinese Animation</li> <li>• History of Anime- Japanese Animation</li> </ul>
5.	<b>The Electronic age</b>

- Early Motion Graphics for Film
- Computer Drawn Feature Films
- Experimental Animation
- The advent of 3D CGI
- The emergence of Games
- CGI from 1990 – present
- Conclusion of Unit

**C. RECOMMENDED STUDY MATERIAL:**

Sr.No	Reference Book	Author	Publication
1.	Cartoons : one hundred years of cinema animation	Bendazzi , Giannalberto	Bloomington, Ind. : Indiana University Press; 1994
2.	<u>They Drew as They Pleased: The Hidden Art of Disney's Golden Age</u>	Ghez , <u>Didier</u>	Chronicle Book; 2015
3.	The World History of Animation	Cavalier, <u>Stephen</u>	University of California Press; First edition; 2011
4.	Dark Alchemy, The Films of Jan Svankmajer	Hames, Peter	Greenwood Press; 1995
5.	Before Mickey: The Animated Film 1898-1928	Crafton , Donald	University of Chicago; 2015
6.	Women and Animation: A Compendium	Pilling, <u>Jayne</u>	BFI Publishing; 1992
7.	Moving Innovation: A History of Computer Animation	Sito, Tom	The MIT Press; 2013
8.	Animation: The Global History	Furniss, Maureen	Thames & Hudson Ltd; 01 edition; 2016

**OBJECTIVE OF THE COURSE:** The subject introduces HCI and user Interface design. They impart sound knowledge of design thinking. It also prepares the student to design based on user experience and user-centered.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of History of Animation Techniques.
2. To understand the Animation Fundamental – Time and Space.
3. To be able to apply the Animation Fundamental – Principles.
4. To analysis Experiment in Animation.
5. To create and export scene into Final Movie.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Introduction to HCI	6
2	User Interface Design (UI)	8
3	User Experience Design (UXD or UED )	8
4	User Centered Design	8
5	Case Studies	6

**B.DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Introduction to HCI</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Human-Computer Interaction Foundations</li> <li>• Models &amp; Theories</li> <li>• Programming interactive systems</li> <li>• Conclusion of the Unit</li> </ul>
2.	<b>User Interface Design (UI)</b>
	<ul style="list-style-type: none"> <li>• Overview of UI – Importance of UI – Characteristics</li> <li>• Design Process</li> <li>• Visual design Concepts</li> <li>• Graphical User interface</li> <li>• Design Tools</li> <li>• Navigation and structure</li> <li>• Composition and Layout Design</li> <li>• Design Icons – Graphic symbols – typography – colour theory</li> <li>• Design Patterns and Style guides</li> <li>• Interaction Styles</li> <li>• Naming &amp; Abbreviations.</li> </ul>
3.	<b>User Experience Design (UXD or UED )</b>
	<ul style="list-style-type: none"> <li>• Overview of UX</li> <li>• Elements of UX</li> <li>• UX Design Process – Research – Design – Prototyping – Testing – Measurements</li> <li>• UX Analysis, Design Thinking – Thinking out of box – Empathy – Design Thinking Process</li> <li>• User research, Planning.</li> </ul>
4.	<b>User Centered Design</b>
	<ul style="list-style-type: none"> <li>• Introduction, Principles</li> <li>• Elements of UCD</li> <li>• User Centered design Process – Analysis – Design – Implementation – Deployment</li> <li>• Benefits of user centered process.</li> </ul>
5.	<b>Case Studies</b>



- Introduction of Unit
- Effective UI Design examples
- UX Design examples
- Common Errors
- Conclusion.

**C.RECOMMENDED STUDY MATERIAL:**

Sr.No	Reference Book	Author	Publication
9.	UX AND UI Design	MacKenzie - Elsevier; First edition (11 January 2013)	Human Computer Interaction
10.	UX AND UI Design	Elizabeth Goodman Ph.D. School of Information University of California Berkeley Dr., Mike Kuniavsky , Andrea Moed - Morgan Kaufmann - 2 edition (24 September 2012)	Observing the User Experience:A Practitioner's Guide to User Research

**OBJECTIVE OF THE COURSE:**

Develop an ability to understand materials, behaviour, and movement of objects. Understand kinetics and learn to recreate structure, force, and body language of any subject/object on a two-dimensional surface. Know how to interpret from the real world for representation, Develop methods to record the motion of objects with their inherent qualities as a series of static positions, to be able to draw from imagination based on the above learning.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of History of Animation Techniques.
2. To understand the Animation Fundamental – Time and Space.
3. To be able to apply the Animation Fundamental – Principles.
4. To analysis Experiment in Animation.
5. To create and export scene into Final Movie.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Sketches from life- observational Drawings of human forms	10
2.	Human anatomy	12
3.	Life study and Simplifying form	12
4.	Miscellaneous figures and Composition	8
5.	Art Representation and Art History	6

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Sketches from life- observational Drawings of human forms</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Line of action , understanding the landmarks in the human body</li> <li>• Free flow gestures in basic shapes- organic and inorganic shapes</li> <li>• Stick Drawings – in various pose actions</li> <li>• Capturing the movements- Twist, turn, bend, lean through Beans and robot beans drawing</li> <li>• Breaking down the human figure in Cubes to understand the proportions and perspective.</li> <li>• Mannequin Drawings – in different pose and actions, learn to draw from different angles and eye levels.</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Human anatomy</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Understanding the Skull- the divisions and planar structure of the Human Head</li> <li>• Skeletal system - understanding the base of the body, identifying the landmarks and overall anatomical proportions of Man, Woman and Child.</li> <li>• Muscular system - the Function and Form of Muscles - Head - Neck and Torso - Torso Back - Arms Forearms and Hand - Pelvis Leg and Foot.</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Life study and Simplifying form</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Realistic style drawings of Human figure</li> <li>• Life study in Class room using live models</li> <li>• Learn to simplify the human drawing in Cartoon style.</li> <li>• Learn to use simple shapes like circle, oval and curves to exaggerate the human figures.</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>Miscellaneous figures and Composition</b>

	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Gods and Super humans, Creative forms of aliens with balanced anatomy</li> <li>• Brief introduction to the anatomy of Animals and birds</li> <li>• Creating Pictorial compositions with background</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Art Representation and Art History</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Human or The History of Art</li> <li>• Relationship between Art and Society.</li> <li>• Western Art, Indian art, Oriental Art, Aesthetics Of Art, Analysis and Criticism.</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr.No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	Force : Animal drawing	Mike D. Mattesi	Focal Press, 2011
2	Figure Drawing for all its worth	Andrew Loomis	Titan books, 2011
3	Dynamic Figure Drawing	Burne Hogarth.	Watson-Guptill, 1996
4	Force: Dynamic Life Drawing for Animators	Mike D. Mattesi.	Focal press, 2006

**OBJECTIVE OF THE COURSE:**

Develop a solid grounding in photography – from camera handling, to getting the right exposure, optimizing manual functions and composition. Participants will develop their photographic eye through a blend of lectures, practical assignments and critiques

- Illustrate a full understanding of the use of all the tools and materials needed in creating traditional fine art photographs.
- Understand and develop a sense of the language of photography, its history and ultimately its potential as a communicative medium.
- Through evaluation and discussion, learn to think critically and articulate intellectual, aesthetic and emotional responses to photographs.
- Course objectives will be reached through a series of assigned projects supported by lectures, demonstrations independent lab work, presentations and critiques.

**OUTCOME OF THE COURSE:**

- Understand the history & evolution of photography art & equipment.
- Demonstrate the ability to choose the right settings of exposure for given lighting conditions.
- Demonstrate the ability to compose the shot in the aesthetically pleasing composition setting.
- Develop the understanding of studio & outdoor lighting techniques that govern the art of Photography.
- Demonstrate effective critical thinking skills (including analysis, critical evaluation, creative thinking, innovation, inquiry, and synthesis) in their study of the art of Photography as a technique of visual communication.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	History of Photography	4
2.	Exposure triangle	10
3.	Composition Techniques	12
4.	Lighting techniques	10
5.	Creative Photography	12

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	History of Photography
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Principle of the camera obscure</li> <li>• To study few photographers like Ansel Adams, Dorothea Lange, Robert Capa etc.</li> <li>• Aesthetics of Photography both in documentary and Creative photography.</li> <li>• Conclusion of Unit</li> </ul>
2.	Exposure triangle
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Understanding exposure and controls</li> <li>• Aperture, f-stop , depth of field,</li> <li>• Shutter Speed, Exposure value,</li> <li>• ISO, Image Stabilization, sensor</li> </ul>

	<ul style="list-style-type: none"> <li>• Conclusion of Unit</li> </ul>
<b>3.</b>	<b>Composition Techniques</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Composition &amp; techniques</li> <li>• Rule of Thirds</li> <li>• Elements of composition, cinematography</li> <li>• Shot Framing techniques</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Lighting techniques</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Spectrum, Color Temperature</li> <li>• Practical Understanding and practice of Lighting techniques, Kinds of lights indoor and outdoor.</li> <li>• Electronic flash and artificial lights, Light meters</li> <li>• Different kinds B &amp; W and color photography.</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Creative Photography</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Macro Photography</li> <li>• Freeze Frame Photography</li> <li>• Light Painting</li> <li>• HDRI and Panoramas</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Book	Author	Publication
1.	20th century photography	Taschen	<b>The Museum Ludwig's 1980</b>
2.	The Art of Photography: An Approach to Personal Expression	Bruce barnbaum	Kendall/Hunt <i>Publishing</i> 1994
3.	Complete_ Digital_ Photography	Ben long	Boston, Mass. : Charles River Media 2001
4.	Camera Lucida	Roland Barthes	Hill & Wang 1980

**OBJECTIVE OF THE COURSE:** This course offers advanced understanding of the art of motion, continuing the learning of principles and skills. Observations and analysis of Movements and Actions are primarily focused to break down the complexity of animate and inanimate beings and objects.

**OUTCOME OF THE COURSE:**

1. Able to learn mechanics of motion
2. Learn to give motion to biped
3. Able to analyse for animate Quadruped and bird in motion
4. Apply the method of animate and Properties of Matter
5. Able to experiment and create sound and background synchronise.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	<b>Mechanics of Motion</b>	8
2.	<b>Biped Motion</b>	12
3.	<b>Quadruped and Bird Motion</b>	10
4.	<b>Animation and Properties of Matter</b>	10
5.	<b>Sound Sync and Background Design</b>	8

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Mechanics of Motion</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Mechanics of Motion</li> <li>• Newton's Laws of Motion</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Biped Motion</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Head turns</li> <li>• Biped Walk Cycle</li> <li>• Biped Run Cycle</li> <li>• Acting and Movement</li> <li>• Weight and Balance</li> <li>• Character Gesture Animation</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Quadruped and Bird Motion</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Four legged Animal walk</li> <li>• Four Legged animal gallop</li> <li>• Bird basic flight cycle</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>Animation and Properties of Matter</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Understanding properties of matter</li> <li>• Making use of the wave principle, delayed secondary action, slow and fast action, overlapping action, follow through, use of anticipation, action, reaction</li> <li>• Effects Animation - flames, smoke, water, rain, etc.</li> <li>• Conclusion of Unit</li> </ul>
5.	<b>Sound Sync and Background Design</b>

- Introduction of Unit
- Character Lip-sync
- Sound Synchronization
- Animated Background Scenes, Scene Management, Editing Scenes.
- Conclusion of Unit

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr.No</b>	<b>Book</b>	<b>Author</b>	<b>Publication</b>
1.	The Animator's Survival Kit	Williams, Richard	Faber; 2009
2.	Animation: The Mechanics of Motion	Webster, Chris	Focal Press; 2005
3.	Eadweard Muybridge - Horses and other animals in motion	Muybridge, Eadweard	Dover Publications INC.;1985
4.	Eadweard Muybridge - The Human Figure in Motion	Muybridge, Eadweard	London Chapman & Hall ;1907
5.	Cartoon Animation by Preston Blair	Blair, Preston	Walter Foster Publishing;1994
6.	Action Analysis for Animators	Webster, Chris	Focal Press; 2012

**OBJECTIVE OF THE COURSE:**

This subject will provide an intermediate level of aspects of 3D – modelling, texturing and animation techniques in Autodesk Maya application. The below units would provide the skills necessary to create simple backgrounds in 3D, create & manage textures maps. The surface properties also called the shading parameters are explained. Further it continues to animation techniques.

**OUTCOME OF THE COURSE:**

1. Ability to Generate complex models of Products with correct proportions
2. Explore biped proportions and exaggerations to create basic animate able models.
3. Understanding muscle loops to edit models to be able to animate as per joint placements
4. Ability to map 3D models in 2D UV space and adjust to suit painting needs
5. Able to create mechanics of Motion and applying principles of animation.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Product Modelling	13
2	Introduction to Character Modelling (basic) - I	12
3	Character Modelling (basic) - II	15
4	Texturing, UV Mapping	10
5	Animation and Mechanics of motion	10

**B. DETAILED SYLLABUS**

Unit	Unit Details
<b>1.</b>	<b>Product Modelling</b>
	<ul style="list-style-type: none"> <li>• Introduction To Product Modelling</li> <li>• Blocking</li> <li>• Details</li> <li>• Constructing a Good Model (the importance of quads, problem with N-gons).</li> <li>• Mesh optimization.</li> <li>• Importance of line flow.</li> <li>• Conclusion of Unit.</li> </ul>
<b>2.</b>	<b>Introduction to Character Modelling (basic) - I</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Understanding Muscle flow for deformation</li> <li>• Simple Fish Modelling</li> <li>• Simple Quadruped modelling</li> <li>• Understanding nature of different materials and achieving different types of texture surfaces such as wood, glass, etc.,</li> <li>• Understanding bitmap and procedural mapping. UV layout for complex props.</li> <li>• Conclusion of Unit.</li> </ul>
<b>3.</b>	<b>Character Modelling (basic) - II</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Simple Character modelling</li> <li>• Hand Modelling</li> <li>• Torso modelling</li> <li>• Face modelling</li> <li>• Clothes modelling</li> <li>• Conclusion of Unit.</li> </ul>
<b>4.</b>	<b>Texturing, UV Mapping</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Using the Hyper shade Window</li> <li>• Procedural v/s non Procedural Textures</li> <li>• 2D and 3D textures</li> </ul>



	<ul style="list-style-type: none"> <li>• Using Anisotropic Shader UV Mapping</li> <li>• Laying Out UVs (understanding the UV space, performing UV layout)</li> <li>• Texture Mapping (creating colour map, bump and specular).</li> <li>• Conclusion of Unit.</li> </ul>
<b>5.</b>	<b>Animation and Mechanics of motion</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Mechanics of Walking.</li> <li>• Animating Walks, Gravity, Momentum &amp; Weight.</li> <li>• Timing, Arcs &amp; Natural Motion.</li> <li>• Secondary Actions, Posing, Animating with Poses.</li> <li>• Following Animation Principles in 3D character animation.</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	Understanding 3D Animation Using Maya	John Edgar Park	Latest
2	Basics Animation: Digital Animation	Andrew Chong	Latest

**Course Outcomes:**

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

CO	Cognitive Abilities	Course Outcomes
CO-01	Understanding/ Applying/Creating	Demonstrate depth of understanding, observing complexity, improve insight and develop independent thought and persuasiveness.
CO-02	Understanding/ Applying	Determine the main ideas of the text by using key details and compare & contrast the most important points with the help of their perspective.
CO-03	Understanding/ Applying/Creating	Practice the qualities of writing style by applying the concepts of sentence conciseness, accuracy, readability, coherence and by avoiding wordiness or ambiguity.
CO-04	Understanding / Applying	Distinguish words and phrases as per their intonation patterns and interpret the audios based on different situations
CO-05	Understanding/Applying	Demonstrate the understanding of impactful conversational skills, presentation skills & telephonic conversation by considering the need of the audience.

UNIT NO.	UNIT NAME	Hours
1	Intrapersonal/Interpersonal Skills	6
2	Reading Skills	4
3	Writing Skills	6
4	Listening Skills	4
5	Speaking Skills	5

LIST OF ACTIVITIES	
1.	Self – Awareness & Self-Introduction
2.	Goal Setting: Ambition induced, interest induced or environment conditioned
3.	Cultivating Conversational Skills
4.	Role Plays : Selection of varied plots, characters & settings
5.	Reading skills I: Newspaper Reading & General Article Reading
6.	Writing Skills I: Story Making by jumbled words
7.	Understanding and Applying Vocabulary
8.	Listening Skills I: Types and practice by analyzing situational listening
9.	Speaking Skills I: JAM
10.	PowerPoint Presentation Skills-I
11.	Telephonic Etiquettes and Communication
12.	Recognizing, understanding and applying communication style (Verbal/Non-Verbal)

**Course Outcomes:**

On successful completion of the course the learners will be able to

CO	Cognitive Abilities	Course Outcomes
CO-01	Understanding/ Applying	Develop the ability to identify difficult sounds, words and phrases to strengthen listening and applying these improved skills in spoken communication.
CO-02	Understanding/ Applying	Cultivating knack for reading and writing by understanding the nuances of sentence structure and presentation style.
CO-03	Understanding/ Applying	Understand negotiation and Identify steps for proper negotiation preparation & learn bargaining techniques and strategies of inventing options for mutual gain and move negotiations from bargaining to closing.
CO-04	Understanding / Applying	Develop a heightened awareness of the potential of digital communication and apply their knowledge in creating documents considering the needs of the netizens.
CO-05	Creating/Applying	Propose their outlook through exposure to new and different experiences and ideas and enrich their understanding of the issues under discussion.

UNIT NO.	UNIT NAME	Hours
1	Advanced Listening & Speaking Skills	6
2	Advanced Reading & Writing Skills	6
3	Art of Negotiation Skills	4
4	Email Etiquettes	4
5	Group Discussion	5

LIST OF LABS	
1.	Listening Skills II: Analysis of videos/audios by famous personalities
2.	Speaking Skills II: Extempore, Debate etc.
3.	Public Speaking: Key Concepts, Overcoming Stage Fear
4.	Story-Telling Skills: Techniques of Story Telling, Prompts for story creation
5.	Situational Conversational Skills
6.	PowerPoint Presentation Skills-II
7.	Reading Skills II: Technical Writings, Research Papers& Articles
8.	Writing Skills II: Blog Writing & Review Writing
9.	Picture Perception & Discussion
10.	Art of Negotiation: Identify the qualities of successful and unsuccessful negotiators. Identify different negotiation situations to practice during class.
11.	Email Etiquettes
12.	Group Discussion: Dos & Don'ts, Informal GD

**Group project on 2d / stop motion animation.**

Stop motion is a powerful animation technique that makes static objects appear to be moving. Creating stop motion draws attention to placement, framing, direction and speed of movement. Types of stop motion techniques/hand drawing/cell/ cut-paper/ sand/ Claymation, experimental animation.

**OBJECTIVE OF THE COURSE:**

To Conceptualize and to generate stronger ideas, critical viewings of animation, and brainstorming and synthesis of ideas, Scripting and Storyboarding to visually plan out the entire animation.

**OUTCOME OF THE COURSE:**

To create an entire project to Conceptualize and to generate stronger ideas, critical viewings of animation, and brainstorming and synthesis of ideas, Scripting and Storyboarding to visually plan out the entire animation using 2D/stop animation techniques.

**Project Guidelines:**

Selection of an area that needs explanation in time, Select a topic that fulfils the requirements of the project, Study material on the subject done by other animation filmmakers/ students and ensure that it is not visualized in the same manner, Comprehend the context of application, Visualize the idea in the form of a storyboard, Develop a technique to visualise, Animate the idea, Using effects, music, or voice will need discretion.

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## DETAILED SYLLABUS FOR THIRD SEMESTER

**Code: BSBCSB3101**

**Film Appreciation and Analysis**

**2 Credits [LTP: 2-0-0]**

### OBJECTIVE OF THE COURSE:

The subject imparts the basic understanding of the process involved in analysing films through the language and grammar. It also provides the history of cinema and its various genres and documents their evolution.

### OUTCOME OF THE COURSE:

- A. The subject aims to impart knowledge of History of Cinema
- B. To Study Film Genres
- C. To be able to understand Film Grammar & language
- D. To analyse the Art Cinematography
- E. To evaluate The Art of Presentation- Editing

### F. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	History of Cinema	4
2	Study of Film Genres	10
3	Film Grammar & language	8
4	The Art Cinematography	10
5	The Art of Presentation- Editing	4

### B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>History of Cinema</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Era of silent films and sound films.</li> <li>• To study some of the great techniques invented during early stages of cinema.</li> <li>• Early Hollywood Directors and studios.</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Study of Film Genres</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• To watch films from popular film genres Adventure, Science fiction, History, Horror, adventure and comedy films by well known directors.</li> <li>• Introduction to Film Noir.</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Film Grammar &amp; language</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Mise-En Scene</li> <li>• Elements of Mise en scene: Representation of space. Set designing</li> <li>• Colour design and symbolism in sets</li> <li>• Lighting – costume designing</li> <li>• Acting and types of acting</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>The Art Cinematography</b>

	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Colour – contrast and Light</li> <li>• Focus, Exposure, Rate</li> <li>• Framing, Scale, Camera, Different types of Shots</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>The Art of Presentation- Editing</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Devices - Transitions, Matches etc.</li> <li>• Case studies/Film viewing and analysis.</li> <li>• Sound-Diegetic, on screen and off screen sound.</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	The Analysis of Film by	Raymond Bellour and Constance Penley (Editor).	Latest
2	How to Read a Film: Movies, Media, and Beyond	James Monaco.	Latest

**OBJECTIVE OF THE COURSE:**

- This subject deals into early films, evolution and men who lead the way.
- Throw light on interesting facts about the history of VFX in cinema, how it all began and evolved.
- Model Hollywood – how Hollywood pioneered the change & created a new breed of profession.
- How the development of visual effects has changed popular cinema's vision.

**OUTCOME OF THE COURSE:**

- To understand the evolution of VFX.
- Develop an understanding for the aesthetic principles that guide the use VFX in film.
- To be able to judge feasibility of systems of vfx used in films.
- Hollywood pioneered the change & created a new breed of profession
- Development of visual effects has changed popular cinema's vision.

**F. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Early Art of VFX	6
2.	Practical Effects Innovation	8
3.	Pioneers of VFX	10
4.	Technology of VFX	4
5.	Digital VFX	8

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Early Art of VFX</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• The Evolution of the art of VFX</li> <li>• Theoretical Analysis</li> <li>• Hollywood</li> <li>• Pioneers of Vfx</li> <li>• Conclusion to the Unit</li> </ul>
2.	<b>Practical Effects Innovation</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• The Shaping of Things to Come</li> <li>• Warfare Impact</li> <li>• The Continued Innovation</li> <li>• Dashing Spaceships.</li> <li>• Conclusion to the Unit</li> </ul>
3.	<b>Pioneers of VFX</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• 1970s VFX</li> <li>• George Lucas - Stephen Spielberg</li> <li>• Industrial Lights &amp; Magic</li> <li>• Indian Vfx history.</li> <li>• Conclusion to the Unit</li> </ul>
4.	<b>Technology of VFX</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Development of Vfx of Films</li> <li>• Rise of Computers Systems</li> <li>• 1980s a Slow evolution with Highlights.</li> <li>• Conclusion to the Unit</li> </ul>

<b>5.</b>	<b>Digital VFX</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Putting Digital Realm on the Map</li> <li>• 1990s Enthralling CGI</li> <li>• Changing the Lingo</li> <li>• Massive Lords</li> <li>• Avatar Box</li> <li>• The State of the Art tools for VFX.</li> <li>• Conclusion to the Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	Special Effects: The History and Technique	Richard Rickitt	Billboard Books I 2nd edition, 2007
2	The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures –I	Jeffrey A. Okun& Susan Zwerman.	Focal Press 2010
3	Industrial Light & Magic: The Art of Innovation Publisher	Pamela Glintenkamp	Abrams ( 2011)



**OBJECTIVE OF THE COURSE:**

To provide technical information and appreciation of cinematography and editing, lighting, the art of presentation, sound, criticism and theories.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of The Art of Cinematography
2. To understand The Art of Presentation
3. To Introduce To Camera To analyse the graphic narratives
4. To evaluate the Principles And Concepts Of Camera
5. To be able to apply Cinematography into our scenes

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	<b>The Art of Cinematography</b>	6
2	<b>The Art of Presentation</b>	8
3	<b>Introduction To Camera</b>	6
4	<b>Principles And Concepts Of Camera</b>	8
5	<b>Cinematography</b>	8

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>The Art of Cinematography</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Understanding Cinema</li> <li>• Film Structure</li> <li>• The need for cinematography</li> <li>• Case study</li> <li>• Conclusion to the Unit</li> </ul>
2.	<b>The Art of Presentation</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Editing Fundamentals</li> <li>• Editing Tools &amp; Techniques</li> <li>• Conclusion to the Unit</li> </ul>
3.	<b>Introduction To Camera</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Camera (definition), Physical camera, Film camera, Still camera.</li> <li>• Motion picture camera, Digital camera, CG /Virtual Camera.</li> <li>• Aspect ratio</li> <li>• Visual Composition, HUMAN EYE VS CAMERA</li> <li>• Working of a Film Camera, Working with Camera Exposure control Focus Image capture.</li> <li>• Conclusion to the Unit</li> </ul>
4.	<b>Principles And Concepts Of Camera</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Angle of view, Aperture, Circle of confusion, Colour temperature</li> <li>• Depth of field, Depth of focus, Double exposure, Exposure, Exposure value</li> <li>• F-number, Film format, Pinhole camera Red-eye effect, Rule of thirds, Shutter speed.</li> <li>• Conclusion to the Unit.</li> </ul>

## 5. Cinematography

- Introduction to the Unit
- Aspects of cinematography, Lens, Zoom, Focal length, Lighting, Special effects, Frame rate selection, Role of the cinematographer.
- Shooting for VFX shot: Green Screen studio design, capturing green screen shots, Lighting shots, Planning and techniques, Short and location notes
- DIGITAL CINEMATOGRAPHY (Visual Effects) :Simulating real world camera in CG, Lens-based camera, Camera movement, CG camera/software camera, Camera effects, Angle of view and film back, Film gate, Problems face with CG Camera, Camera walk-through.
- Conclusion of unit.

### C. RECOMMENDED STUDY MATERIAL:

Sr. No	Reference Book	Author	Publication
1	Cinematography: Theory and Practice: Image Making for Cinematographers and Directors	Blain Brown	Focal Press, (2011)
2	The Filmmaker's Eye: Learning (and Breaking) the Rules of Cinematic Composition	Gustavo Mercad	Focal Press, 1 edition (2010)
3	Film Editing: Great Cuts Every Filmmaker and Movie Lover Must Know	Gael Chandler	Michael Wiese Productions (2009)

**OBJECTIVE OF THE COURSE:**

To impart skills on writing stories/ script and visualization through storyboards and animatic, which is essentially a part of pipeline for Animation film production?

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of Film Medium Terminologies and Formats
2. To be able to Research for Pre-Production
3. To understand the Narrative Techniques
4. To be able to create the Storyboards and Concepts
5. To create suitable Animatics

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
	<b>Film Medium Terminologies and Formats</b>	<b>2</b>
	<b>Research for Pre-Production</b>	<b>6</b>
	<b>Narrative Techniques</b>	<b>10</b>
	<b>Storyboards and Concepts</b>	<b>18</b>
	<b>Animatics</b>	<b>12</b>

**B. DETAILED SYLLABUS**

Unit	Unit Details
<b>1.</b>	<b>Film Medium Terminologies and Formats</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Medium and Formats - Film, Frame Rate, Size and Gauge</li> <li>• Tele Cine and Reverse Tele Cine.</li> <li>• Demonstrate through videos 16 mm /35mm /70mm / Full Screen / Letter Boxing / Wide Screen</li> <li>• Conclusion of Unit</li> </ul>
<b>2.</b>	<b>Research for Pre-Production</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Story Research - Period - Historic / Scientific facts</li> <li>• Society &amp; culture study</li> <li>• How to decide about the time and place: when, where and who.</li> <li>• To create Acts or scenes: To divide the story in to shots. Scene as the driver of plot.</li> <li>• Beats and how to keep the story moving. Relation between actions, characters and scenes.</li> <li>• Fast phasing and slow phasing scenes</li> <li>• Conclusion of Unit</li> </ul>
<b>3.</b>	<b>Narrative Techniques</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Experimenting with techniques for visual storytelling, structure, story building,</li> <li>• Examining indigenous narratives, both contemporary and traditional to gain an understanding of storytelling methods pertinent to different culture</li> <li>• Indian – Ajanta, Patta Chitra, Miniatures- Phad, Kavad, Mughal Paintings, Yam pat, Groda, Bhil, Chitrakathi, etc.</li> <li>• Use of Graphic Narrative for expressing a social or personal themes</li> <li>• Dialogue mechanics, attributions and tags</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Storyboards and Concepts</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Creating dramatic flow, planning, pacing, sequencing, organizing visual flow and continuity in storyboards</li> <li>• Thumb nailing</li> </ul>

	<ul style="list-style-type: none"> <li>• Techniques and styles, Inking, Framing and Composition and Perspective</li> <li>• Anatomy of a Storyboard, Advanced Storyboard Techniques. Various Camera Shots and Camera Moves and their meaning, Transitions, Aspects of the story board.</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Animatics</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Sound Effects Music and Foleys.</li> <li>• Recording of dialogue,</li> <li>• Shooting the Storyboard, Slugging the Storyboard, Animatics.</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	The Art of storyboard	John Hart	Routledge, 2007
2	Exploring Storyboarding (Design Exploration) [Paperback]	Wendy Tumminello	Course Technology, 2004

**OBJECTIVE OF THE COURSE:**

- Learn the tools to create 3d animation.
- Applying principles of animation for 3D Animation.
- Discover the significance of Rig and its effective use in Animation.

**OUTCOME OF THE COURSE:**

1. To understand the basic concepts of 3D animation and application of keys on the frames for animation.
2. Reading, understanding and editing Graph editor in order have a smooth and clean animation
3. Reading, understanding and editing Dope Sheet for editing keys and adjusting timing of the animation
4. Animating an object with the application of the 12 principles.
5. Will be able to animate male/female generic walk cycle.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	<b>Ball bounce (weight, slow in out, Pose to Pose, arc, Timing)</b>	8
2	<b>Ball Character(Anticipation, Straight ahead, staging, stretch and squash, exaggeration, Secondary action, Appeal)</b>	8
3	<b>Posing and gesture study</b>	8
4	<b>Constraints and Basic Rigging</b>	12
5	<b>Walk cycle</b>	12

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Ball bounce (weight, slow in out, stretch and squash, exaggeration, arc, Timing)</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Understanding frames, concept of time, gravity</li> <li>• The Art of 3d animation</li> <li>• Importance of classical Animation principles</li> <li>• Ball Bounce, Pose to Pose ,timing and arc</li> <li>• Ball bounce, weight, slow in out</li> <li>• Cycles and holds</li> <li>• Setting up output file size and resolution,</li> <li>• Previewing Animation using Play blast.</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Ball Character(Anticipation, Straight ahead, staging, stretch and squash, exaggeration, Secondary action, Appeal)</b>
	<ul style="list-style-type: none"> <li>• Viewing the ball as a Character, adding anticipation and straight ahead</li> <li>• Ball- stretch and squash, exaggeration</li> <li>• Ball –appeal, tail(secondary action)</li> <li>• Camera - Posing</li> <li>• Working with keys and Tangents</li> <li>• Creating and Editing keys in graph editor</li> <li>• Creating a Path Animation</li> <li>• The Attach To Path Options Window</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Posing and gesture study</b>
	<ul style="list-style-type: none"> <li>• Studying body language</li> <li>• Introduction to acting for animation</li> <li>• Drawing thumbnails for animation</li> <li>• Using Rigs to create Main Poses, stepped keys</li> <li>• Posing - Normal and Extreme poses - Old people, Martial artist, Dancer, Skater</li> <li>• Adding in-between poses</li> </ul>

	<ul style="list-style-type: none"> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Constraints and Basic Rigging</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Using Constraints for rigging</li> <li>• Introduction to joints setup</li> <li>• IK setup</li> <li>• Controllers setup</li> <li>• Skinning</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Walk cycle</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Understanding body movement.</li> <li>• Generic walk cycle</li> <li>• Female Walk cycle</li> <li>• Normal, Double bounce, Characterized, Limping.</li> <li>• Walk Cycle with Personality</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	<i>Introducing Autodesk Maya 2016: Autodesk Official Press</i>	Dariush Derakhshani	Latest

**OBJECTIVE OF THE COURSE:**

To practice the art of editing and sound creation for films. To understand the workflow and tools used to edit films.

**OUTCOME OF THE COURSE:**

- A. The subject aims to impart knowledge of Editing Interface
- B. To understand the Project Management
- C. To be able to apply the Editing Techniques for Genre.
- D. To understand Foley Editing
- E. To be able to apply Multi Track Foley Editing and Effects

**F. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Editing Interface	5
2	Project Management	5
3	Editing Techniques for Genre	14
4	Foley Editing	10
5	Multi Track Foley Editing and Effects	14

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Editing Interface</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Editing Tools and workflow management</li> <li>• Importing and Transcoding</li> <li>• Capturing Footage, Edit Decision List [EDL]</li> <li>• Rough Edit, Working with multiple layers of video</li> <li>• Mixing multiple sound clips for a video.</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Project Management</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Projects settings, Folder Management</li> <li>• Editing clips, sound sync</li> <li>• Adding Transitions and Effects, Title Design</li> <li>• Importing and blending Motion graphics for video.</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Editing Techniques for Genre</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Editing for Genre and Scenes</li> <li>• Music Video, Documentary editing</li> <li>• Conversation shot editing, Action sequence</li> <li>• Editing for Animation, Retro style editing techniques.</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>Foley Editing</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Foley Recording and Editing</li> <li>• Music Layer Recording and Mixing</li> </ul>

	<ul style="list-style-type: none"> <li>• Adding Effects to sounds</li> <li>• Altering pitch of the sound</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Multi Track Foley Editing and Effects</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Removing audio artefacts</li> <li>• Adding and Removing White and Pink Noise</li> <li>• Filters and Effects for sound.</li> <li>• Exporting completed media to various formats</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	In the Blink of an Eye	<u>Walter Murch,</u> <u>Francis Ford</u> <u>Coppola</u>	August 1st 2001 by Silman-James Press
2	<ul style="list-style-type: none"> <li>• The Technique of Film and Video Editing: History, Theory, and Practice</li> </ul>	<ul style="list-style-type: none"> <li>• Ken Dancyger</li> </ul>	Routledge; 5 edition (26 November 2010)



**OBJECTIVE OF THE COURSE:** In this topic students will be able to know the research and context for design and development of the Characters for narrative stories. Students will understand methods to ideate, and design real and morphed characters.

**OUTCOME OF THE COURSE:**

- A. The subject aims to impart knowledge of Character Design Fundamentals
- B. To Research for Character Design
- C. To be able to apply Imaginative Character Design
- D. To understand Anthropomorphic Character Design
- E. To evaluate Role of Contextual Characters

**F. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
	<b>Character Design Fundamentals</b>	<b>6</b>
	<b>Research for Character Design</b>	<b>10</b>
	<b>Imaginative Character Design</b>	<b>10</b>
	<b>Anthropomorphic Character Design</b>	<b>6</b>
	<b>Contextual Characters</b>	<b>4</b>

**B. DETAILED SYLLABUS**

Unit	Unit Details
	<b>Character Design Fundamentals</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Introduction to Character Design</li> <li>• Elements of Character Design.</li> <li>• Conclusion of Unit</li> </ul>
	<b>Research for Character Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Creating Trait sheets to map out Physical appearance, Background story, Psychological traits, Personality and attitude etc.</li> <li>• Creating traits of the existing characters in animated movies and short films</li> <li>• Conclusion of Unit</li> </ul>
	<b>Imaginative Character Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Developing characters from imagination</li> <li>• Conclusion of Unit</li> </ul>
	<b>Anthropomorphic Character Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Anthropomorphic, Zoomorphic,</li> <li>• Conclusion of Unit</li> </ul>
	<b>Contextual Characters</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Characters in different animations</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1.	Force - Character Design from Life Drawing	Michael D Mattesi	Focal Press, 2008
2.	Ideas for the Animated Short	Karen Sullivan and Gary Schumer	Focal Press, 2008
3.	Disney/Pixar Art books	Miscellaneous	Chronicle Book LLC.

# Departmental Electives

Code: BSBCSB3211

Motion Graphics

2 Credits [LTP: 0-1-4]

## OBJECTIVE OF THE COURSE:

The students will receive information that will enable them to:

- Familiarize the tools and techniques to create Motion graphics and effects
- Learn Problem solving techniques to rectify the errors during the process
- Create content for broadcast, feature film and animation.

## OUTCOME OF THE COURSE:

1. The subject aims to impart knowledge of History of Motion Graphics
2. To understand the Applications of Motion Graphics
3. To be able to apply the Tools and Techniques.
4. To analyse the Motion Theory
5. To use Animation for Motion Graphics

## A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	History of Motion Graphics	10
2	Applications of Motion Graphics	10
3	Tools and Techniques	10
4	Motion Theory	8
5	Animation for Motion Graphics	10

## B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Evolution of Motion Graphics</b> <ul style="list-style-type: none"><li>• Introduction to the Unit</li><li>• Early animation techniques</li><li>• Experimental animation</li><li>• Motion graphics in Film titles and television, Montages and Mobile applications</li><li>• Conclusion to the Unit</li></ul>
2.	<b>Motion Theory</b> <ul style="list-style-type: none"><li>• Introduction to the Unit</li><li>• The language of motion</li><li>• Visual properties, Image considerations</li><li>• Typography animation</li><li>• Conclusion to the Unit.</li></ul>
3.	<b>Animation for Motion Graphics</b> <ul style="list-style-type: none"><li>• Introduction to the Unit</li><li>• Animation process</li><li>• Key frame animation</li><li>• Expressions, animating using sound and scripting.</li><li>• Editing, Cuts and transitions</li><li>• Establishing pace and rhythm</li><li>• Conclusion to the Unit</li></ul>
4.	<b>Tools and Techniques</b> <ul style="list-style-type: none"><li>• Introduction the Unit</li><li>• Tools and Techniques</li></ul>

- Effects, Expressions
- Importing external animations
- Blending 2D, 3D elements
- Particle effects, light effect, flares,
- Conclusion to the Unit

**5. Applications of Motion Graphics**

- Introduction to the Unit
- Film Titles
- Network Branding, Commercials
- Music videos
- Animation for user interaction
- Digital signage
- New Technology
- Conclusion to the Unit

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	Motion by Design	Drate, Spencer. Robbins, David. Salavetz, Judith.	Laurence King; Har/DVD edition (November 1, 2006)
2	The Complete Animation Course: The Principles, Practice and Techniques of Successful Animation	Patmore, Chris. Cowan, Finlay	Barron's Educational Series (August 1, 2003)

**OBJECTIVE OF THE COURSE:** Understand and formulate the dynamic simulations to be created.

- To create simple dynamic simulations of object collisions and destructions.
- To create particle simulations for simulating liquids and gas.
- To understand and implement scripting for creating dynamic simulations.

**OUTCOME OF THE COURSE:**

1. Understand role of physics to determine motion and action of dynamic solutions
2. Understand particle-based systems to simulate volumetric motion
3. Learn to be able to setup physics based rigid body simulation
4. To be able to simulate soft body dynamics through different solutions available
5. Use fluid-based dynamics to simulate fire, smoke etc.

#### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Physics of Dynamics Fundamentals	10
2	Rigid body Dynamics	10
3	Particles, Fields, Collision	10
4	Soft Body Dynamics	10
5	Simulation and Dynamics	8

#### B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Physics of Dynamics Fundamentals</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Introduction to Applied Physics and Quantum mechanics</li> <li>• Kinetic Motion</li> <li>• Energy Conversion</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Rigid body Dynamics</b>
	<ul style="list-style-type: none"> <li>• Introduction to unit</li> <li>• Active and Passive rigid body</li> <li>• Dynamic constraints</li> <li>• Conclusion to unit</li> </ul>
3.	<b>Particles in Maya</b>
	<ul style="list-style-type: none"> <li>• Introduction to unit</li> <li>• Particles in Maya</li> <li>• Emitter in Maya</li> <li>• Particle Collision &amp; New Events</li> <li>• Rigid body interaction</li> <li>• Conclusion to unit</li> </ul>
4.	<b>Soft Body Dynamics</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Using Soft body with no goal</li> <li>• Soft body with duplicate as goal</li> <li>• Soft body with Original as goal</li> <li>• Using springs with soft body</li> <li>• Soft body interaction with fields and rigid body</li> </ul>
5.	<b>Simulation and Dynamics</b>

- Introduction to Unit
- Destruction of objects experiments, nature elements simulation using particles [Water, smoke, fire etc]
- Rendering simulations, Optimizing simulations,
- Simulation for Video and motion graphics
- Conclusion of unit

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	Maya Studio Projects: Dynamics	Todd Palamar	Latest
2	Modelling the Environment: Techniques and Tools for the 3D Illustration of Dynamic Landscapes	Bradley Cantrell and Natalie Yates	John Wiley & Sons (2012)

**Code: BULCHU3201. HUMAN VALUES & PROFESSIONAL ETHICS 1 Credit [LTP: 0-0-2]**

**Course Outcomes:**

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

CO	Cognitive Abilities	Course Outcomes
CO-01	Understanding/ Applying	Understand the importance of human values and learn from others' experiences to become the conscious practitioners of the same.
CO-02	Understanding/ Applying	Enhance their self-esteem, confidence and assertive behaviour to handle difficult situations with grace, style, and professionalism.
CO-03	Understanding/ Applying	Distinguish among various levels of professional ethics while developing an understanding of them as a process in an organization.
CO-04	Understanding / Applying	Implement emotional intelligence to achieve set targets and excel in interpersonal as well as intrapersonal
CO-05	Understanding/Applying	Demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment.

UNIT NO.	UNIT NAME	Hours
1	Introduction to Human Values	6
2	Study of Self	4
3	Introduction to Professional Ethics	4
4	Emotional Intelligence	6
5	Life Skills & Value Education	5

LIST OF LABS	
1.	Human Values: Love & Compassion
2.	Truth, Non-Violence, Righteousness
3.	Peace, Service, Renunciation (Sacrifice)
4.	Self-Esteem: Do's and Don'ts to develop positive self-esteem
5.	Self-Assertiveness: Development of Assertive Personality
6.	Ambition & Desire: Self & Body (concepts & differences )
7.	Professional Ethics: Personal & Professional Ethics
8.	Emotional Intelligence: Skill Building for Strengthening the Elements of Self-awareness, Self-regulation, Internal motivation, Empathy, Social skills
9.	Governing Ethics & Ethics Dilemma
10.	Profession, Professionalism & Professional Risks
11.	Professional Accountabilities & Professional Success
12.	Life Skills & Value Education

**Code: BSBCSB3304**

**Minor Project III**

**3 Credit [LTP: 0-0-6]**

**OBJECTIVE OF THE COURSE:**

The objective of this Group project is to provide students with the opportunities to use their skills in a practical environment where they work to create a live action/experimental or mixed media short film. This will allow students to find their place in a working environment and at the same time participate as a group to create the short film

**OUTCOME OF THE COURSE:**

To create a live action/experimental or mixed media short film

**Project Guidelines:**

Selection of an area that needs explanation in time, Select a topic that fulfils the requirements of the project, Study material on the subject done by other animation filmmakers/ students and ensure that it is not visualized in the same manner, Comprehend the context of application, Visualize the idea in the form of a storyboard, Develop a technique to visualise, Animate the idea, Using effects, music, or voice will need discretion.

**Group project on live Action / Experimental / Mixed media short film.**

## DETAILED SYLLABUS FOR FOURTH SEMESTER

**Code: BSBCSB4102**

**Game Design Concepts**

**2 Credits [LTP: 2-0-0]**

### OBJECTIVE OF THE COURSE:

This topic will enable the students to understand the importance of research and developing the design concepts for Game.

1. To understand gaming industry and its pipeline.
2. To appraise the importance of Game Design and creating story for games.
3. To discuss the importance of different elements of Game Design.
4. To identify the approach of creation and balancing the games.
5. To recognize the best practice to create document related to gaming.
6. To review and analyse a game to publish and market it.

### OUTCOME OF THE COURSE:

1. The subject aims to impart knowledge of Introduction To Gaming
2. To be able to Conceptualize Game
3. To understand Universal Principles Of Game Design
4. To analyse the Elements Of Game Design
5. To develop Game Documentation & Reviewing & Publishing

### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
	<b>Introduction To Gaming</b>	<b>6</b>
	<b>Conceptualize Game</b>	<b>8</b>
	<b>Universal Principles Of Game Design</b>	<b>8</b>
	<b>Elements Of Game Design</b>	<b>8</b>
	<b>Game Documentation &amp; Reviewing &amp; Publishing</b>	<b>6</b>

### B. DETAILED SYLLABUS

Unit	Unit Details
	<b>Introduction To Gaming</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Introduction- gaming,</li> <li>• Game Pipeline,</li> <li>• Video Game Genre,</li> <li>• Different Job Roles In Gaming,</li> <li>• Understanding Machines For Games,</li> <li>• Understanding Player.</li> <li>• Conclusion of Unit.</li> </ul>
	<b>Conceptualize Game</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Ideation Technique,</li> <li>• Elements Of A Story, Interactive Fiction,</li> <li>• Story Board, Cut Scene in Games.</li> <li>• Conclusion of Unit.</li> </ul>
	<b>Universal Principles Of Game Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Universal Principles Of Game Creation,</li> <li>• Universal Principles Of Game Innovation.</li> <li>• Universal Principle Of Game Balancing,</li> <li>• Universal Principles for Game Troubleshooting.</li> <li>• Conclusion of Unit</li> </ul>



<b>Elements Of Game Design</b>	
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Creative and Expressive Gameplay,</li> <li>• World Of Aesthetics, Core Mechanics,</li> <li>• Character Development,</li> <li>• General Principles of Game Design,</li> <li>• UI/UX Design</li> <li>• Conclusion of Unit.</li> </ul>
<b>Game Documentation &amp; Reviewing &amp; Publishing</b>	
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Pitch Document,</li> <li>• Game Analysis, GDD,</li> <li>• Art Bible, TDD, Writing Game Reviews,</li> <li>• Monetization Techniques,</li> <li>• Game Publishing and Marketing.</li> <li>• Conclusion of Unit.</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	Level Up! The Guide to Great Video Game Design	Scott Rogers, A John Wiley & Sons, Ltd.	Publication, ISBN 978-0-470-68867-0
2	100 Principles of Game Design	Wendy Despain	New Riders (Division of Pearson Publication), ISBN -13: 978-0-321-90249-8
3	FUNDAMENTALS OF GAME DESIGN, SECOND EDITION	Ernest Adams	New Riders Publication, ISBN-13: 978-0-321-64337-7
4	Game Development and Production	Erik Bethke, Wordware Inc.,	ISBN 1-55622-951-8

**Reference Books:**

1. Game Design: Theory & Practice Second Edition by Richard Rouse III, Wordware Publishing, Inc., Publication, ISBN 1-55622-912-7
2. Game Design Essentials by Briar Lee Mitchell, John Wiley & Sons, Inc, ISBN: 978-1-118-15927-9

**OBJECTIVE OF THE COURSE:**

To provide practical knowledge in setting up production studio, establishing the pipeline, pitching for projects and managing the production house.

**OUTCOME OF THE COURSE:**

1. Understand the steps to pitch own concepts/ stories/ ideas to market successfully
2. Understand the working of a studio
3. Learn to manage pipeline to optimize delivery of projects
4. Be equipped with knowledge to manage a project and a team
5. Be able to design a studio based of type of work and projects

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Production pipeline	5
2	Requirement for a Production Pipeline	5
3	Pipeline Management	10
4	Project Management	10
5	Studio Design	6

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Production pipeline</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Types of production</li> <li>• Study of various mediums of production such as Film, T.V, Games, etc.</li> <li>• Conclusion of Unit.</li> </ul>
2.	<b>Requirement for a Production Pipeline</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• The Process and the Pipeline</li> <li>• Teams in production</li> <li>• Conclusion of Unit.</li> </ul>
3.	<b>Pipeline Management</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• A typical pipeline</li> <li>• Significance of Pipeline</li> <li>• Technical Direction</li> <li>• Conclusion of Unit.</li> </ul>
4.	<b>Project Management</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Types of Project and medium of production</li> <li>• Delivery of Project</li> <li>• Understanding typical project requirement</li> <li>• Scheduling and budgeting</li> <li>• Conclusion of Unit.</li> </ul>
5.	<b>Studio Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Infrastructure for different medium</li> <li>• The Work force</li> </ul>

- Recruitment
- Indian Scenario
- Conclusion of Unit.

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	The Visual Effects Producer: Understanding the Art and Business of VFX	Charles Finance, Susan Zwerman	Focal Press; 1 edition (2009)
2	The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures	Jeffrey A. Okun,	Focal Press; 1 edition (2010)

**OBJECTIVE OF THE COURSE:**

To impart skills of conceptualizing and designing Characters and Layouts from the story. Students will learn to assimilate the theory and techniques quintessential for pre- production of motion pictures.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of Character Traits and development
2. To understand the development of Character Bible
3. To be able to Design Layout.
4. To analyse the Morphed Characters and Layout
5. To develop Character and Layout Style development

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
	<b>Character Traits and development</b>	6
	<b>Character Bible</b>	8
	<b>Layout Design</b>	8
	<b>Morphed Characters and Layout</b>	8
	<b>Character and Layout Style development</b>	6

**B. DETAILED SYLLABUS**

Unit	Unit Details
	<b>Character Traits and development</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Designing Characters based on Stories</li> <li>• Creating Character traits for individual characters</li> <li>• Using traits to develop Designs</li> <li>• Visualization of the characters through Drawing.</li> <li>• Conclusion of Unit.</li> </ul>
	<b>Character Bible</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Creating Turnaround sheets, Creating model Sheets.</li> <li>• Creating Expression Chart.</li> <li>• Creating character design for protagonist, antagonist, round, dynamic, static characters</li> <li>• Creating Scale Chart of all characters</li> <li>• Creating Hand-outs for all of the above.</li> <li>• Colouring the Hand-outs.</li> <li>• Conclusion of Unit.</li> </ul>
	<b>Layout Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Practicing Layout from existing Concepts</li> <li>• Understanding the use of elements in Layout</li> <li>• Creating layouts for proposed concepts</li> <li>• Research for concepts</li> <li>• Conclusion of Unit.</li> </ul>

<b>Morphed Characters and Layout</b>	
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Creating Anthropomorphs, Theomorphs, Zoomorphs and Mesomorphs based on research</li> <li>• Creating Character Bible</li> <li>• Layout Designs based on proposed concept story</li> <li>• Conclusion of Unit.</li> </ul>
<b>Character and Layout Style development</b>	
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Rendering – styles and techniques.</li> <li>• Developing personal style using different mediums,</li> <li>• Conclusion of Unit.</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1.	Setting the Scene: The Art & Evolution of Animation Layout	Fraser MacLean	Chronicle Books, 2011
2.	Layout and Composition for Animation	<u>Ed Ghertner</u>	Focal press, 2010
3.	The Noble Approach	<u>Maurice Noble &amp; Ted Polson</u>	Chronicle Books, 2013
4.	The Hidden Art of Disney's Golden age	<u>Didier Ghez</u>	Chronicle Books, 2015

**OBJECTIVE OF THE COURSE:** The Objective of this course is to help students to

- Learn the tools in creating 3D animation.
- Apply principles of animation in 3D Animation.
- Understand the 3D workflow.
- Create believable animation.
- Implement Motion and body dynamics in Animation

**OUTCOME OF THE COURSE:**

1. Rigging a biped character, Male/Female ready to animate.
2. Creating a character-based run cycle, jump cycle and Walk cycle with personality.
3. Will be able to edit every key and motion of the animation and insert more details by just using Graph editor and Dope sheet.
4. Will be able to understand the body mechanics and weight distribution of a human body.
5. Animating an entire scene including acting for the animation.

#### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	<b>Biped Rigging</b>	8
2	<b>Run cycle, Jump Cycle, progressive Walk Cycle</b>	8
3	<b>Graph editor, Dope sheet</b>	8
4	<b>Weight Lifting, Pushing (Character Animation)</b>	12
5	<b>Animating Scene</b>	12

#### B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Biped Rigging</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Understanding joints and controllers</li> <li>• Adding attributes, set driven key</li> <li>• Blend shapes.</li> <li>• Setting up Facial controls.</li> <li>• Conclusion of Unit.</li> </ul>
2.	<b>Run cycle, Jump Cycle, Progressive Walk Cycle</b>
	<ul style="list-style-type: none"> <li>• Animating a Run cycle</li> <li>• Animation a Jump cycle</li> <li>• Progressive Walk cycle</li> <li>• Run cycles, Jog, Sprint, Full Run, Jumping</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Graph editor, Dope sheet</b>
	<ul style="list-style-type: none"> <li>• Extending Graph editor</li> <li>• Change Rotation</li> <li>• Interpolation</li> <li>• Resample Curves Simplify curves.</li> <li>• Concept of Dope Sheet</li> <li>• Moving Keys in Dope Sheet</li> <li>• Creating a Path Animation</li> <li>• The Attach To Path Options Window</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>Weight Lifting, Pushing (Character Animation)</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Animating Weight lifts</li> <li>• Animating Pushing</li> </ul>

	<ul style="list-style-type: none"> <li>• Animating Pulling</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Animating Scene</b>
	<ul style="list-style-type: none"> <li>• Rotoscopy Animation – Frame by frame</li> <li>• Deciding on concept</li> <li>• Acting for Animation</li> <li>• Thumb nailing – gestures study</li> <li>• Breaking shot wise</li> <li>• Camera, scene setup</li> <li>• Main Pose, Anticipation, Follow Through</li> <li>• Arcs, Graph editor</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	The ILLUSION OF LIFE: DISNEY ANIMATION	Frank Thomas	(Disney Editions Deluxe) Latest
2	Animators Survival kit	Richard Williams	Faber, Latest

**OBJECTIVE OF THE COURSE:**

The Objective of this course is to help students understand the implementation process of lighting in the virtual world with reference to real world

- The course introduces to the History of compositing and its various elements.
- To familiarize the students in Advanced In-Depth Compositing
- Complete Hands of Layer management and it efficient usage.
- Application of Lighting, render passes and various elements involved in compositing.  
Creating video art for various application's like music, dance, media, automation and interactive film.

**Course Outcome:**

1. Discover the significance of fundamentals of Compositing.
2. Application of Layers, Lighting, Keying, Tracking and stabilization for various visual elements.
3. Appraise the strategies for techniques in compositing.
4. Analyse the significance of various elements in compositing.
5. Composing for Video Art namely music, automation, and media.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	History of Compositing	10
2	Digital Image	8
3	Layers	8
4	Lighting and Composition	10
5	Theory and Practice of Video Art	12

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Shaders</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit.</li> <li>• History of Compositing, Terminologies, Physical Compositing,</li> <li>• Multiple exposure, Background Projection, Matting,</li> <li>• Digital Compositing, Node based and Layer Based Compositing.</li> <li>• Visual information and the camera, The Camera and Parameters,</li> <li>• Resolution Limits, Focus, Depth of field, Motion blurs Lens correction</li> <li>• Conclusion of Unit.</li> </ul>
2.	<b>Light Types</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Digital Image Generation, Pixels, Components and Channels, Bit Depth,</li> <li>• Floating point and High Dynamic Range Imagery, HSV Colour, YUV colour,</li> <li>• Digital Image file formats, Channels, Compression.</li> <li>• Colour Manipulation, Levels, Variations, Multiply, Add, Gamma Correction,</li> <li>• Exposure Correction, Invert, Contrast, HSV manipulations</li> <li>• Conclusion of Unit.</li> </ul>
3.	<b>Art of Lighting</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Layer and Node based compositing, Blending layers, Matte Image, Masking, Morphing - Chroma Keying, Garbage Mattes, Edge Mattes, Luminance Keying, Chrominance Keying, Difference Matting, Plug-ins and tools for keying.</li> <li>• Tracking and Stabilization, Tracking an element, 2D tracking, Perspective tracking,</li> <li>• Stabilizing footage, Limitations of tracking and stabilizing tools,</li> <li>• Tools for advanced tracking and match moving.</li> <li>• Digital Imagery, Colour Correction</li> <li>• Conclusion of Unit.</li> </ul>



<b>4. Render Settings</b>	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Creating elements, Lighting in compositing tool,</li> <li>• Matching live and virtual cameras. 3D Compositing,</li> <li>• Vanishing point conversion, creating 3D compositing using 2D images,</li> <li>• Working with camera and lighting, effects,</li> <li>• Working with Multi pass Rendering, Alpha and Luma mattes,</li> <li>• Z depth maps, Blending passes and effects .</li> <li>• Animation, 2D and 3D transformation,</li> <li>• Temporal and spartial interpolation, speed graph, optimizing key frames, expressions for animation, Time Remapping</li> <li>• Conclusion of Unit.</li> </ul>
<b>5. Render Pass and Techniques</b>	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• History of Video Art,</li> <li>• Contemporary video style,</li> <li>• Culture and emotion reference - Video synthesizer,</li> <li>• Real time video art, tools and techniques,</li> <li>• Applications - music visualization and media art, automation to music,</li> <li>• Applications and tools - Video art as art form, Interactive film,</li> <li>• Display and projection, case studies</li> <li>• Conclusion of Unit.</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	Compositing Digital Images	T. Porter and T. Duff I Proceedings of SIGGRAPH '84, 18 (1984) I	
2	The Art and Science of Digital Compositing	Ron Brinkmann	
3	The VES Handbook of Visual Effects	Okun J, Zwerman S.	

**OBJECTIVE OF THE COURSE:**

The Objective of this course is to help students understand the implementation process of lighting in the virtual world with reference to real world

**OUTCOME OF THE COURSE:**

1. Ability to understand components of shading and texturing.
2. Use lights according to the mood / feel of the scene
3. Be able to use product lighting setup effectively
4. Optimize render settings as to produce best renders at minimum time possible
5. Ability to break up renders in passes to pass to post production unit to optimize workflow

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Shaders	16
2	Light Types	16
3	Art of Lighting	14
4	Render Settings	6
5	Render Pass and Techniques	8

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Shaders</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit.</li> <li>• Understanding Shading attributes.</li> <li>• 2D and 3D texture types.</li> <li>• Adding a light source.</li> <li>• Testing the lights.</li> <li>• Conclusion of Unit.</li> </ul>
2.	<b>Light Types</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Light types, Attributes of Light Shadows and their functions.</li> <li>• Shadow types, Depth mapped shadows,</li> <li>• Ray traced shadows.</li> <li>• Conclusion of Unit.</li> </ul>
3.	<b>Art of Lighting</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Understanding the Art of Lighting – 1, 2, 3point lighting.</li> <li>• Outdoor lighting, indoor lighting, product lighting.</li> <li>• Optical FX .</li> <li>• Conclusion of Unit.</li> </ul>
4.	<b>Render Settings</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Concepts of Rendering</li> <li>• Render settings.</li> <li>• Rendering optimization.</li> <li>• Level of Details [LOD].</li> <li>• Ray tracing.</li> <li>• Conclusion of Unit.</li> </ul>

<b>5.</b>	<b>Render Pass and Techniques</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Types of renderer.</li> <li>• Introduction to Indirect lighting techniques.</li> <li>• Introduction to render passes.</li> <li>• Conclusion of Unit.</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	Digital Lighting & Rendering, Second Edition	Jeremy iirn	New Riders , Latest
2	Mental ray for Maya, 3ds Max, and XSI: A 3D Artist's Guide to Rendering	Boaz Livn	Sybex, Latest

**OBJECTIVE OF THE COURSE:**

In this topic students will be able to know the research and context for design and development of the Characters for narrative stories. Students will understand methods to ideate, and design real and morphed characters.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of Character Design Fundamentals
2. To Research for Character Design
3. To be able to apply Imaginative Character Design
4. To understand Anthropomorphic Character Design
5. To evaluate Role of Contextual Characters

**G. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
	<b>Character Design Fundamentals</b>	<b>6</b>
	<b>Research for Character Design</b>	<b>10</b>
	<b>Imaginative Character Design</b>	<b>10</b>
	<b>Anthropomorphic Character Design</b>	<b>6</b>
	<b>Contextual Characters</b>	<b>4</b>

**C. DETAILED SYLLABUS**

Unit	Unit Details
	<b>Exploring the character</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Exploring the character from life</li> <li>• Character Traits and Creating Character bibles from the research</li> <li>• Character expression chart</li> <li>• Conclusion of Unit</li> </ul>
	<b>Character Bible</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Understanding the story and design process behind the existing characters.</li> <li>• Creating Character based on the bibles</li> <li>• Conclusion of Unit</li> </ul>
	<b>Imaginative Character</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Creating imaginary Characters based on Place Geography/location &amp; culture types</li> <li>• Conclusion of Unit</li> </ul>
	<b>Anthropomorphic Character</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Theomorphic and Neomorphic characters</li> <li>• Use of Anthropomorphic Characters in cultures around the world</li> <li>• Morphs</li> <li>• Conclusion of Unit</li> </ul>
	<b>Symbolism</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• The role, symbolism and significance of all characters in animated films.</li> <li>• Conclusion of Unit</li> </ul>

**D. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1.	Force - Character Design from Life Drawing	Michael D Mattesi	Focal Press, 2008
2.	Ideas for the Animated Short	Karen Sullivan and Gary Schumer	Focal Press, 2008
3.	Disney/Pixar Art books	Miscellaneous	Chronicle Book LLC.

A. **Course Outcomes:** On successful completion of the course the learners will be able to.

CO	Cognitive Abilities	Course Outcomes
CO-01	Understanding/ Applying	Integrate their understanding into their leadership skills development process.
CO-02	Understanding/ Applying	Demonstrate knowledge of the working environment impacting business organizations and exhibit an understanding of ethical implications of decisions.
CO-03	Understanding/ Applying	Assess leadership styles and sharpen the managerial skills to communicate effectively and facilitate decision making in relation with self-management, stress management and conflict management.
CO-04	Understanding / Applying	Generate a creative thinking, something beyond the obvious answers and solution to a specific problem.
CO-05	Creating/Applying	Understand the significance of trust and team skills, creating new innovative ideas with the help of brainstorming and learn work etiquettes.

UNIT NO.	UNIT NAME	Hours
1	Leadership Skills	4
2	Entrepreneurial Skills	4
3	Managerial Skills: Self –Management, Stress Management & Conflict Management	6
4	Creative Thinking & Design Thinking	6
5	Team Building & Confidence Building	5

#### LIST OF LABS

Leadership Skills: Stages of development
Leadership Skills I: Attributes of great leaders, decision making, activities to enhance such qualities
Leadership Through Biographies
Entrepreneurial Skills: Traits & Competencies of an Entrepreneur
Managerial Skills: Conflict Management
Self-Management: Challenges & Solutions
Stress Management : Causes of stress and regulation
Creating Business Plans: Problem Identification and Idea Generation
Design Thinking: Transforming Challenges into Opportunities
Creative Thinking & Analytical Thinking: Presentation
Team building: Developing teams and team work
Confidence Building : Improving engagement, communicating effectively & activities to facilitate decision making

**OBJECTIVE OF THE COURSE:**

Create a 3D/Vfx short film. To enable students to understand and develop methods to communicate data – (simple to dense) using graphical techniques and working with precision, Understand the relevance of data and the nature of visualization and context for the communication, Identifying charts, maps graphs and other such visual explanations that do not work and thereby learn what does work, Using skills to efficiency, Developing methods to convey data for – readability, aesthetics and ability to convey multiple layers of information and meaning, Developing flexibility with skills to ensure that any data to be visualised is executed with a technique most appropriate for the content.

**Project Guidelines:**

Selection of an area that needs explanation in time, Select a topic that fulfils the requirements of the project, Study material on the subject done by other animation filmmakers/ students and ensure that it is not visualized in the same manner, Comprehend the context of application, Visualize the idea in the form of a storyboard, Develop a technique to visualise, Animate the idea, Using effects, music, or voice will need discretion.

**OUTCOME OF THE COURSE:**

To create a 3D/VFX short film to understand and develop methods to communicate data using graphical techniques and working with precision,

## DETAILED SYLLABUS FOR FIFTH SEMESTER

**Code: BSBCSB5201**

**Augmented reality and Virtual reality**

**2: Credits: [LTP:0-0-4]**

### OBJECTIVE OF THE COURSE:

The purpose of this subject is to provide the students with methodologies and specific industry skills that will assist them in identifying issues and creating design solutions with emphasis on Augmented reality and Virtual reality. The students will receive information that will enable them to:

- To understand AR ecosystem
- To examine process set up in AR
- To discuss assets development in AR
- To identify process of a build in an AR app
- To create a simple AR app

### OUTCOME OF THE COURSE:

1. The subject aims to impart knowledge of Introduction of AR
2. To understand the development of Setting Up Projects
3. To be able to develop Assets
4. To be able to build Apps
5. To create an Augmented Business Card

### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	<b>Introduction of AR</b>	6
2	<b>Setting Up Project</b>	6
3	<b>Assets Development</b>	6
4	<b>Building App</b>	10
5	<b>Augmented Business Card</b>	8

### B. DETAILED SYLLABUS

Unit	Unit Details
<b>1</b>	<b>Introduction of AR</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Overview of AR, AR vs VR, how AR works, Different types of AR , AR targets, types of AR for Marketers – Marker Based – Marker less – Layar / Goggles , Applications of AR, technical issues</li> <li>• Conclusion of Unit</li> </ul>
<b>2</b>	<b>Setting Up Project</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Install unity, Vuforia package, Android SDK, Vuforia developer portal account, using Camera in AR, placing a object, inspector setup – create a button. – Develop – Vuforia - License manager – get development key –target manager – add database setup.</li> <li>• Conclusion of Unit</li> </ul>
<b>3</b>	<b>Assets Development</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>UI</b>, Videos, <b>3D Model</b> - Character – Vehicles – Alien – Environment - props, Texturing, Rigging, Animation - Walk – jump – dance – run , file formats.</li> <li>• Conclusion of Unit</li> </ul>
<b>4</b>	<b>Building App</b>



	<ul style="list-style-type: none"> <li>• Introduction, Identifying platform and toolkits, Vuforia – dataset setup , integration in unity, UI interactions , unity setup , image target, touch controls, player settings, Switch platform and build app.</li> <li>• Conclusion of Unit</li> </ul>
<b>5</b>	<b>Augmented Business Card</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Planning AR development, setting up the project (Vuforia), Adding the image target, Adding objects, Animate the object, object setup in unity, Build the APK.</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	Augmented Reality for Developers: Build practical augmented reality applications with Unity, ARCore, ARKit, and Vuforia	Jonathan Linowes (Author), Krystian Babilinski (Author)	Packt Publishing; 1 edition (October 9, 2017) - ASIN: B075V9XJ3Z.
2	Unity 2018 Augmented Reality Projects: Build four immersive and fun AR applications using ARkit, ARCore, and Vuforia	Jesse Glover (Author)	Packt Publishing - ebooks Account (July 30, 2018) - ISBN-10: 9781788838764, ISBN-13: 978-1788838764.
3	Practical Augmented Reality: A Guide to the Technologies, Applications, and Human Factors for AR and VR (Usability)	1st Edition - by Steve Aukstakalnis (Author) - Addison-Wesley Professional	1 edition (September 18, 2016) - ISBN-10: 0134094239, ISBN-13: 978-0134094236

**OBJECTIVE OF THE COURSE:**

The purpose of this subject is to provide the students with methodologies and specific industry skills that will assist them in identifying issues and creating design solutions with emphasis on branding and identity. The students will receive information that will enable them to:

- Identifying design issues
- Apply design principles to come up a brand identity and preserving the identity throughout the system.
- Understand the various Visual design roles in an organization.
- Understanding different Design workflows.
- Test the functionality of their design to get the most impact.

**OUTCOME OF THE COURSE:**

1. The subject aims to impart knowledge of Branding
2. To understand the development of Experience Design
3. To be able to Design For Web and Mobile Application
4. To evaluate Design Testing
5. To be able to research Tools for design

**D. OUTLINE OF THE COURSE]**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Branding	10
2.	Experience Design	10
3.	Design For Web and Mobile Application	10
4.	Design Testing and Evaluation	10
5.	Tools for design	8

**E. DETAILED SYLLABUS**

Unit	Unit Details
1	<b>Branding</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Brand, Identity and logo</li> <li>• Design Ethnography</li> <li>• Conclusion of Unit</li> </ul>
2	<b>Experience Design</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• User Persona</li> <li>• Workflow storyboarding</li> <li>• Identifying Design Issues</li> <li>• Conclusion of Unit</li> </ul>
3	<b>Design for Web and Mobile application</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Information Architecture</li> </ul>

	<ul style="list-style-type: none"> <li>• Iconography</li> <li>• Grid system for responsive design</li> <li>• Maintaining brand identity</li> <li>• Prototyping</li> <li>• Conclusion of Unit</li> </ul>
<b>4</b>	<b>Design Testing and Evaluation</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Usability testing</li> <li>• Heuristic evaluation</li> <li>• Conclusion of Unit</li> </ul>
<b>5</b>	<b>Tools for Design</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• File formats and exports for web</li> <li>• Design workflow</li> <li>• Conclusion of Unit</li> </ul>

**F. RECOMMENDED STUDY MATERIAL:**

<b>Sr.No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	The Elements of User Experience: User-Centered Design for the Web and Beyond	Jesse James Garrett	New Riders; 2 edition (16 December 2010)
2	Designing Brand Identity: An Essential Guide for the Whole Branding Team	Alina Wheeler	John Wiley & Sons; 3rd Edition edition (11 September 2009)
3	Storytelling for User Experience: Crafting Stories for Better Design	Whitney Quesenbery	Rosenfeld Media; 1st edition (April 15, 2010)

**OVERVIEW AND OBJECTIVES:**

The objective of is to go through a rigorous and dedicated time to create a portfolio worth professional industry. Students will be guided in their respective stream to produce a worthwhile portfolio that will reflect their skill and hard work.

**OUTCOME OF THE COURSE:**

To develop a portfolio showcasing skills pertaining to specialization to meet the required industry standards or pursuing higher studies.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Basic Portfolio	20
2	Advanced Portfolio	20
3	Showcasing of Online portfolio	12
4	Compilation of best work into video show reel	10
5	Final show reel	10

## Departmental Elective (Practical)

**Code: BSBCSB5211**

**Advanced 3D Animation & Rigging**

**5 Credits [LTP: 0-5-10]**

**OBJECTIVE OF THE COURSE:** The subject will provide advanced learning options in Rigging & Animation. The units will highlight the process of rigging a biped character, using constraints and creating a complete rigging. The right biped walk cycle follows. It covers rigging for quadruped, creating skeleton, and controls. Further it includes quadruped animation approaches, facial animation techniques, rigging and animating an automotive model.

**OUTCOME OF THE COURSE:**

1. Will be able to create advanced character rig including facial expression and extra attributes depending on the character to be rigged,
2. Able to animate facial expression and lip sync with an audio clip.
3. Animating a character with personality and lip sync as one complete animation scene.
4. Rigging a complete Quadruped including skinning and facial expressions.
5. Animating a quadruped character, walk cycle , jump cycle and run cycle.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	<b>Character Rigging</b>	34
2	<b>Facial Animation and Lip Sync</b>	34
3	<b>Advanced Animation – Character</b>	38
4	<b>Quadruped Character Rigging</b>	38
5	<b>Animating Quadruped Character</b>	36

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Character Rigging</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Advanced Rigging Process for a Biped Character.</li> <li>• Spline IK</li> <li>• Using Set-Driven – Stretchiness – Organizing Rigging Nodes.</li> <li>• Muscle system</li> <li>• Dynamic Rig</li> <li>• <b>LAB</b> – Complete Biped Rig</li> </ul>
2.	<b>Facial Animation and Lip Sync</b>
	<ul style="list-style-type: none"> <li>• Understanding Phonetics</li> <li>• Loading and editing sound files</li> <li>• Matching dialogs</li> <li>• Expressions</li> <li>• Eye blinks</li> <li>• Character interaction.</li> <li>• <b>LAB</b> – An Animation shot with expressions, dialog and action</li> </ul>
3.	<b>Advanced Animation – Character</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Animating a scene with Dialog, expressions and action</li> <li>• Conclusion of Unit.</li> <li>• <b>LAB</b> – Complete animation shot (acting shot)</li> </ul>
4.	<b>Quadruped Character Rigging</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Rigging Process for a Quadruped Character.</li> <li>• Creation of Skeleton, Adding Kinematics, Bind Skin.</li> <li>• Adding Constraints for Rigging Controls.</li> <li>• Creating Global Control .</li> <li>• Using Set-Driven , Stretchiness, Organizing Rigging Nodes.</li> </ul>

	<b>LAB – Quadruped Rig</b>
<b>5.</b>	<b>Animating Quadruped Character</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Quadruped Animation Approaches.</li> <li>• Observations of Motion.</li> <li>• The Four Gaits.</li> <li>• Study of Walks and Runs.</li> <li>• Animating a Walk.</li> </ul> <b>LAB – Quadruped Animation scene</b>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	Mastering Autodesk Maya 2013	Todd Palamar	Sybex, Latest
2	Maya 2008 Character Modeling and Animation: Principles and Practices	Tereza Flaxman	Charles River Media , Latest

**OBJECTIVE OF THE COURSE:**

The subject will provide advanced learning options in Modelling & Texturing. It differentiates various modelling techniques, provides the skill set necessary to create technically correct biped, quadruped and automotive models using maya. It includes texture creation for complicated models, gives introduction to Z Brush & Organic/Inorganic model creation in Z Brush environment.

**OUTCOME OF THE COURSE:**

1. Understand and breakdown complex designs to simple forms and model them
2. Create anatomically / technically correct models
3. Create quadruped models with correct mesh flow to get better deformations
4. Use sculpting solutions to add modelling and texturing details to the models
5. Complete a model with needed details

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	<b>BG and Prop Modelling</b>	34
2	<b>Product Modelling</b>	34
3	<b>Character Modelling</b>	38
4	<b>Shading and Texturing</b>	38
5	<b>Sculpting models</b>	36

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>BG and Prop Modelling</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Working with Nurbs.</li> <li>• Modelling Props Using Nurbs.</li> <li>• Subdivision Proxy Modelling.</li> <li>• Inorganic Modelling (modelling Backgrounds &amp; Assets).</li> <li>• Modelling Optimization Techniques.</li> </ul> <b>LAB</b> – Complete interior/exterior with Texture
2.	<b>Product Modelling</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Product Modelling.</li> <li>• Blocking, Volume, Extracting and Detailing</li> <li>• Modelling clean and realistic set with optimized and controlled mesh.</li> <li>• UV unwrapping and setting up textures.</li> <li>• Final Render</li> </ul> <b>LAB</b> – Final Output of a product model
3.	<b>Character Modelling</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Organic Modelling.</li> <li>• Building a Biped Character, Refining Character Geometry, Model Clean Up.</li> <li>• Adding Geometry for Good Deformations.</li> <li>• Positioning for Rigging.</li> <li>• Blend Shapes for Facial Expression.</li> <li>• Modelling &amp; Building a Quadruped Character.</li> <li>• <b>LAB</b> – Complete Modelled, unwrapped and textured character</li> </ul>
4.	<b>Shading and Texturing</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit.</li> <li>• Surface Materials – 2D &amp; 3D Texture Placements.</li> <li>• UV Layout Texturing.</li> <li>• Using Photoshop for Texture Creation.</li> <li>• Applying Texture Maps.</li> </ul>

	<ul style="list-style-type: none"> <li>• Texture Painting.</li> <li>• Conclusion of Unit.</li> </ul>
<b>5.</b>	<b>Sculpting models</b>
	<ul style="list-style-type: none"> <li>• Introduction to Sculpting.</li> <li>• Pipeline Integration with Maya &amp; Sculpting tools.</li> <li>• Inorganic &amp; Organic Modelling.</li> <li>• Adding Details.</li> <li>• Normal Mapping Techniques.</li> <li>• Conclusion of Unit.</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1	Mastering Autodesk Maya 2013	Todd Palamar	Sybex, Latest
2	Maya 2008 Character Modelling and Animation: Principles and Practices	Tereza Flaxman.	Charles River Media , Latest



**OBJECTIVE OF THE COURSE:** Advanced Digital Animation focuses on the implementation of 2D Animation Design with research for problem solving and creative expression. Students follow the pipelines required for various communication mediums and set-ups.

**COURSE OUTCOME:**

1. Discover the significance of advanced 2D Character Animation.
2. Application of Effects Animation.
3. Appraise the strategies for advanced techniques for Digital Animation
4. Analyse the significance of external plugins and their implementations
5. Application of Game Design and Assets Development & 2d Motion Graphics Short.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Character Expressions and Acting	34
2	Effects Animation	34
3	Advertisement in Digital Animation	38
4	Game Design and Assets Development	38
5	2d Motion Graphics Short	36

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Character Expressions and Acting</b>
	<ul style="list-style-type: none"> <li>• Introduction to Advanced Acting for Animation</li> <li>• Mapping Facial Expressions</li> <li>• Animate/ Inanimate Character Movement and Gesture Animation</li> <li>• Short Clip on 2D Character Animation</li> </ul>
2.	<b>Effects Animation</b>
	<ul style="list-style-type: none"> <li>• Material Analysis</li> <li>• Concept for 20sec Effects Animation</li> <li>• Effects Motion and Design</li> </ul>
3.	<b>Digital Animation Advertisement</b>
	<ul style="list-style-type: none"> <li>• Brand Research</li> <li>• Iterations and Concept Development for 20sec Animation Ad</li> <li>• Preproduction</li> <li>• Production</li> <li>• Post Production</li> </ul>
4.	<b>Game Design and Assets Development</b>
	<ul style="list-style-type: none"> <li>• Game Research</li> <li>• 2D Game Art</li> <li>• Asset Development – Character, Props, Background</li> <li>• Game Development</li> </ul>
5.	<b>2d Motion Graphics Short</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• 20sec clip using Motion Graphics for Infotainment</li> <li>• Conclusion to the Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1.	How to Make Animated Films -Tony White's Complete Master class on the Traditional Principles of Animation	White ,Tony	Focal Press, 2009
2.	The Complete Animation Course: The Principles, Practice and Techniques of Successful Animation	Patmore, Chris. Cowan, Finlay	Barron's Educational Series (August 1, 2003)
3.	Dream worlds: Production design for animation.	Bacher, Hans	Oxford: Focal Press 2008, 208 S.
4.	Game Design Workshop	Fullerton ,Tracy	A K Peters/ CRC Press, 2014
5.	The Game Narrative Toolbox, a Focal Press book	Tobias Heussner	Routledge, 2015

**Course Objectives:**

- Obtain knowledge in render pass/channel management and bit depth allocation
- Understand LUT and its application in color correction for compositing
- Learn the application of external plugins for various purposes
- Ability to work with detailed in-depth composites, concepts and techniques for advanced VFX shots
- Identify the application of 3d compositing, projection mapping and tracking.

**Course Outcome:**

1. Discover the significance of Render passes and channel management
2. Application of LUT and elements for color correction.
3. Appraise the strategies for advanced techniques for in-depth compositing
4. Analyse the significance of external plugins and their implementations
5. Composing with 3d layers and application of tracking & projection mapping

**D. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Passes for Compositing	34
2	Rotoscopy, Painting and LUT	34
3	Advanced Compositing	38
4	Working in 3D	38
5	Tracking and Match moving	36

**E. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Passes for Compositing</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Pass Management, Bit Depth Allocation, Finding The Best Depth Channels, Color Channels for the Project</li> <li>• Conclusion to the Unit</li> </ul>
2.	<b>Rotoscopy, Painting and LUT</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• The LUT use and Specifications, Finding the Black's and White's, Node reusing to Maintain Color Correction, Use of Plugin's in 3D Channels</li> <li>• Short film project using Rotoscopy, Painting and compositing [Group or Individual]</li> <li>• Conclusion to the Unit</li> </ul>
3.	<b>Advanced Compositing</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Advanced In-Depth Compositing, Concepts and Techniques to Compositing Foliage, Learn to Composite Hair and Fur, Creating and Merging Horizon Lines, Using Vector Blur For Quicker Results</li> <li>• Short film project using Match moving and CG Compositing [Group or Individual]</li> <li>• Conclusion to the Unit.</li> </ul>
4.	<b>Working in 3D</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Creating Macro's and Dummies, 3D Layers / Nodes in Brief, 3D Camera Projection and Tracking, 3D Channels and Depth Creation, RGB Mattes and Rotoscopy Solutions.</li> <li>• Conclusion to the Unit</li> </ul>
5.	<b>Tracking and Match moving</b>
	<ul style="list-style-type: none"> <li>• Introduction to the Unit</li> <li>• Short film project using Tracking and Match moving [Group or Individual]</li> <li>• Conclusion to the Unit</li> </ul>

**F. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	[digital] Visual Effects and Compositing	Jon Gress	New Riders, 2014
2	The Art and Science of Digital Compositing	Ron Brinkmann	Morgan Kaufmann; 2 edition (24 May 2008)

**Course Outcomes:**

On successful completion of the course the learners will be able to

CO	Cognitive Abilities	Course Outcomes
CO-01	Understanding/ Applying	Integrate their understanding into their leadership skills development process.
CO-02	Understanding/ Applying	Demonstrate knowledge of the working environment impacting business organizations and exhibit an understanding of ethical implications of decisions.
CO-03	Understanding/ Applying	Assess leadership styles and sharpen the managerial skills to communicate effectively and facilitate decision making in relation with self-management, stress management and conflict management.
CO-04	Understanding / Applying	Generate a creative thinking, something beyond the obvious answers and solution to a specific problem.
CO-05	Creating/Applying	Understand the significance of trust and team skills, creating new innovative ideas with the help of brainstorming and learn work etiquettes.

UNIT NO.	UNIT NAME	Hours
1	Leadership Skills	4
2	Entrepreneurial Skills	4
3	Managerial Skills: Self –Management, Stress Management & Conflict Management	6
4	Creative Thinking & Design Thinking	6
5	Team Building & Confidence Building	5

LIST OF LABS	
1.	Leadership Skills: Stages of development
2.	Leadership Skills I: Attributes of great leaders, decision making, activities to enhance such qualities
3.	Leadership Through Biographies
4.	Entrepreneurial Skills: Traits & Competencies of an Entrepreneur
5.	Managerial Skills: Conflict Management
6.	Self-Management: Challenges & Solutions
7.	Stress Management : Causes of stress and regulation
8.	Creating Business Plans: Problem Identification and Idea Generation
9.	Design Thinking: Transforming Challenges into Opportunities
10.	Creative Thinking & Analytical Thinking: Presentation
11.	Team building: Developing teams and team work
12.	Confidence Building : Improving engagement, communicating effectively & activities to facilitate decision making

**OVERVIEW AND OBJECTIVES:**

The objective of practical training seminar is to give students hand on training on the latest advancements in technology and tools used in animation and vfx. The selection of seminar will be done on the basis of market requirement and decided by the HOD of the concern department.

**Course Outcome:**

1. Discover the significance of Render passes and channel management
2. Application of LUT and elements for colour correction.
3. Appraise the strategies for advanced techniques for in-depth compositing
4. Analyse the significance of external plugins and their implementations
5. Composing with 3d layers and application of tracking & projection mapping

**Categories for Practical Training Seminar (PTS)**

1	Latest Technologies used in Animation and VFX
2	Latest Tools and Software used in VFX
3	Latest Equipment's and Hardware used for Animation and VFX
4	Trends in Animation and VFX market

# DETAILED SYLLABUS FOR SIXTH SEMESTER

Code: BSBESB6501

Final Project /Internship (In campus / External)

6 Credits [LTP: 0-0-0]

## OVERVIEW AND OBJECTIVES:

To provide an opportunity to the student to explore the ideas for Animation short. To impart skills in developing a story and script. To provide opportunity in designing the characters, Layouts. To impart skills in Animatics  
To provide opportunity to visualize the concepts in any media chosen such as 2D / 3D To provide knowledge in production of the assets in 2D / 3D like Characters, Layouts etc. To provide knowledge in Rigging, Animation  
To provide knowledge in designing the sounds for the Animation  
To provide knowledge in Lighting the scenes, and Rendering the scenes

## PART I

Part one will consist of all **Pre-production** for the short animated degree film.

Students are expected to take up an independent study and production of a Short Animated Film. The film may be 2 – 5 minutes in duration. The project may be done independently or in a group not larger than 4-5 members. The project must be well researched with adequate time spent on information collection, a thorough documentation of all the sources with appropriate credits provided for the information from books, websites, people, organizations etc.

The project must be a culmination of all learning through the semesters and must be seen as opportunity to converge and cohesively bring both conceptual and craft skills together in the film.

The student/s is expected to demonstrate sensitivity to content, cultures, and people and take the responsibility for the content being conveyed through the film.

The film must be a clear indication of the maturity, responsibility and concern the student is capable of demonstrating.

1. This must be conveyed through the content in the film
2. Concept and craft skills
3. Imagination and innovation
4. Execution of the product with professionalism
5. Time frames and deadlines
6. Contact with teachers during the project
7. Ability to be a team player and leader
8. Integrity of the product in terms of credits and following copyright laws
9. Documentation of the process and presentation of the final film
10. Ability to articulate, communicate and present the project

## PART II

Part two will consist of all **Production** and **Post-production** for the short animated degree film. Students are expected to take up an independent study and production of a Short Animated Film. The film may be 2 – 5 minutes in duration. The project may be done independently or in a group not larger than 6 members. The project must be well researched with adequate time spent on information collection, a thorough documentation of all the sources with appropriate credits provided for the information from books, websites, people, organizations etc...

The project must be a culmination of all learning through the semesters and must be seen as opportunity to converge and cohesively bring both conceptual and craft skills together in the film.

The student/s is expected to demonstrate sensitivity to content, cultures, and people and take the responsibility for the content being conveyed through the film.

The film must be a clear indication of the maturity, responsibility and concern the student is capable of demonstrating

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- Integrity of the product in terms of credits and following copyright laws
- Documentation of the process and presentation of the final film

- Ability to articulate, communicate and present the project

ALL students must submit a show reel. It is a mandatory part of the final degree submission. If any student fails to submit her/his show reel, the final submission will be considered incomplete and will have to follow the rules as applicable. The final degree project will be considered incomplete and a decision of the jury will be final under such circumstances.

## **PROJECT GUIDELINES**

1. A film (short) shall be done using animation as medium, Animation medium includes the following :
  1. Traditional
  2. Digital
  3. Contemporary
  4. Mixed media
2. Each story has to be guided by faculty from the respective centre.
3. Duration of the films (short) should not be less than 2 minutes and more than minutes in length
4. The above mentioned length of film is not inclusive of title and end credits
5. The length of credits should not exceed 10 % of the total length of the film.
6. The film will be considered as complete only if it contains title cards – film itself (fully lit and rendered)-end credit titles, all with music.
7. The film can have a three act structure or it can be a single act or just a visual gag.
8. The content of the film should not have any material in it which is socially in sensitive.
9. The suggestion is that only a maximum of 3 characters be used in the story due time constraints and that would be irrespective of the length of the film.
10. If you are using CG as the medium for creating your film; the film should not have more than 1, 00,000 polycount in any shot composition and the per character poly count should not exceed 10,000.
11. Avoid scenes like these in 3D animation - dense forests, populated areas, (high end dynamics, water, cloth, fur and hair based simulations).
12. The final must be at happen at 25 FPS.
13. Follow the video safe area.
14. The Final output resolution must only be of 720x576 PAL (use letterboxing for widescreen presentation)
15. The final output should be an MPEG2/MOV.
16. The File size of the finished film should not exceed 200MB/ minute.

### **Group:**

- For the execution of the project, the class shall be divided into groups/teams of students.
- Each Group should not have more than 6 individuals and not less than 4 individuals.
- Make sure all skill sets are available within the team.
- If any member of the group is not observed participating and fulfilling his assigned areas, with due commitment, the rest of the group can decide against having his/her name in the credits.

### **Group In charge/Team Mentor**

- One Faculty for each group can be a Team Mentor and responsible for final output.
- Team Mentor should assign the jobs to the students, fix deadlines and do quality check at various intervals
- Team Mentor should also manage the pipeline, for which he/she can appoint one student for his assistance.

\*\*\*\*\***END**\*\*\*\*\*