

SCHEME & SYLLABUS
B.SC. ANIMATION AND MULTIMEDIA
Course - 04 Years



(3/4 years Honours or Honours with Research)
Four Year Under-Graduate (FYUG) Programme as per NEP Choice
Based Credit System Semester Scheme with Multiple Entry and Exit
Options

Programme Code: UG002 (Academic Session 2025-26 onwards)
National Higher Education Qualifications Framework (NHEQF)
Level (3 Years- 5.5, 4 Years- 6)

Department of Computer Science and Applications
UICAIS
Sant Baba Bhag Singh University
Batch: 2025-2026 onwards (As Per NEP 2020)

SCHEME & SYLLABUS

(04 YEARS B.SC. ANIMATION AND MULTIMEDIA PROGRAMME)

Session: 2025-29

ABOUT THE B.SC. ANIMATION AND MULTIMEDIA

The B.Sc. in Animation and Multimedia is a 04-years undergraduate program that combines creativity with technology to train students in animation, visual effects (VFX), game design, and multimedia production. It covers areas like 2D/3D animation, graphic design, digital storytelling, and post-production using industry-standard tools. The course nurtures both artistic skills and technical expertise, preparing students for careers in film, television, advertising, gaming, and digital media. With a blend of theory, practical projects, and internships, graduates develop strong portfolios and are well-equipped to enter the dynamic world of digital arts and entertainment.

SALIENT FEATURES OF THE DEPARTMENT

- **Industry-Relevant Curriculum** – Up-to-date syllabus designed with inputs from industry experts to match current trends in animation, VFX, gaming, and multimedia.
- **State-of-the-Art Infrastructure** – Equipped with high-end animation labs, green screen studios, audio recording suites, and the latest software tools.
- **Experienced Faculty** – A team of qualified professionals with academic and industry backgrounds in animation, design, and digital media.
- **Project-Based Learning** – Emphasis on hands-on projects, short films, and live assignments to build strong practical skills and creative portfolios.
- **Industry Collaboration** – Regular workshops, seminars, internships, and guest lectures from leading studios and professionals.
- **Career Support** – Strong placement assistance, portfolio development, and mentorship for diverse careers in media, entertainment, and design industries.

B.Sc. ANIMATION AND MULTIMEDIA

The Program outcomes in B.SC. ANIMATION AND MULTIMEDIA are aimed at allowing flexibility and innovation in design and development of course content, in method of imparting training, in teaching learning process and in assessment procedures of the learning outcomes. The emphasis in B.Sc. ANIMATION AND MULTIMEDIA courses, in the outcome-based curriculum framework, help students learn solving problems, accomplishing IT tasks, and expressing creativity, both individually and cooperatively. The proposed framework will help Students learn programming techniques and the syntax of one or more programming languages. **After graduating with a 4 years degree, the students are eligible for 1 year MCA (Master in Animation and Multimedia) Programme.**

VISION

The vision of the Department of Animation and Multimedia is to become a premier hub of creative excellence, empowering students with artistic, technical, and storytelling skills. We aim to nurture innovative, industry-ready professionals who can lead and shape the future of animation, multimedia, and digital content creation globally.

MISSION

To provide quality education in animation and multimedia through creative learning, hands-on training, and industry exposure, fostering innovation, professionalism, and global competence among students.

ELIGIBILITY CRITERIA

- 10+2 or its equivalent examination in any stream conducted by a recognized Board/ University/Council

DURATION

- 4 Years

The present Curriculum Framework for B.SC. ANIMATION AND MULTIMEDIA degrees is intended to facilitate the students to achieve the following:

- Strong Foundation – Develop a solid understanding of animation principles, multimedia tools, and digital design fundamentals.

- Creative Expression – Encourage originality, storytelling, and visual communication through practical and artistic skills.
- Technical Proficiency – Gain hands-on experience with industry-standard software for 2D/3D animation, VFX, and multimedia production.
- Interdisciplinary Knowledge – Integrate concepts from art, design, technology, and communication for holistic learning.
- Professional Readiness – Prepare for diverse roles in the media and entertainment industry with real-world project experience.
- Ethical and Cultural Awareness – Foster responsible content creation respecting cultural diversity and ethical standards.
- Lifelong Learning – Promote continuous learning, adaptability, and innovation in response to evolving digital trends.

The objectives of the Programme are:

- **To impart foundational and advanced knowledge** in animation, multimedia, visual effects, and related digital technologies.
- **To nurture creativity and storytelling abilities** through hands-on learning and artistic exploration.
- **To develop technical competence** in using industry-standard tools and software for animation and media production.
- **To encourage innovative thinking and problem-solving** in visual communication and digital content creation.
- **To prepare students for careers** in animation, VFX, gaming, advertising, web design, and digital media industries.
- **To instill professional ethics and teamwork skills** for effective collaboration in creative and production environments.
- **To promote research and lifelong learning** for sustained growth and adaptability in a dynamic industry.
- **To enhance communication and presentation skills** for effective storytelling and client engagement in multimedia projects.
- **To expose students to industry practices** through internships, workshops, and live projects with professionals and studios.
- **To encourage entrepreneurial mindset** and support students in launching startups or freelancing careers in the creative industry.

Program Outcomes:

- **Demonstrate Artistic Proficiency** – Apply principles of design, drawing, and visual aesthetics in animation and multimedia creations.
- **Master Technical Tools** – Use industry-standard software and tools for 2D/3D animation, VFX, compositing, and digital media production.
- **Create Compelling Narratives** – Craft engaging stories and characters through visual storytelling, scriptwriting, and cinematic techniques.
- **Blend Creativity with Technology** – Integrate artistic vision with technical execution to produce innovative digital content.
- **Produce Professional Portfolios** – Develop industry-ready showreels and portfolios showcasing a range of creative and technical skills.
- **Collaborate Effectively** – Work efficiently in teams on animation and multimedia projects, emulating real-world studio environments.
- **Solve Creative Challenges** – Apply problem-solving and critical thinking in the planning, development, and execution of multimedia projects.
- **Adapt to Industry Trends** – Stay updated with emerging technologies, software, and practices in animation, gaming, and digital media.
- **Communicate Visually** – Express ideas, emotions, and narratives effectively through visual mediums and multimedia formats.
- **Understand Audience and Context** – Create content suited to target audiences, platforms, and cultural contexts.
- **Apply Ethical and Social Responsibility** – Demonstrate awareness of copyright, cultural sensitivity, and ethical practices in content creation.
- **Engage in Lifelong Learning** – Pursue continual skill development and adaptability in a rapidly evolving creative industry.
- **Innovate Across Media Forms** – Experiment with formats such as AR/VR, mobile apps, motion graphics, and interactive design.
- **Display Entrepreneurial Skills** – Identify opportunities for freelancing, startups, and creative ventures within the media industry.
- **Deliver Professional Outcomes** – Plan, manage, and execute multimedia projects with attention to quality, deadlines, and client expectations.

PROGRAMME SPECIFIC OUTCOMES (PSO)

- **Specialized Skill Mastery** – Graduates will proficiently create high-quality 2D and 3D animations, visual effects, and multimedia content using advanced software and creative techniques.
- **Innovative Content Creation** – Ability to design and develop original digital media projects, including games, interactive applications, and immersive experiences like AR and VR.
- **Cross-Disciplinary Integration** – Apply knowledge of art, technology, storytelling, and user experience to deliver compelling and engaging multimedia solutions.
- **Industry-Ready Professionalism** – Demonstrate effective project management, teamwork, and communication skills tailored for animation studios, game development, and digital media sectors.
- **Ethical and Cultural Sensitivity** – Create responsible and culturally aware content that respects intellectual property rights and promotes inclusivity in the digital world.

CHOICE BASED CREDIT SYSTEM (CBCS)

The choice-based credit system provides flexibility in designing curriculum and assigning credits based on the course content and hour of teaching. The choice-based credit system provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective and open elective courses. The CBCS provides a cafeteria type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning. The courses shall be evaluated on the grading system, which is considered to be better than the conventional marks system. It is necessary to introduce the grading system to make uniformity among all technical institutions of India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in the evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the AICTE has formulated the guidelines to be followed.

Curriculum Structure: B.SC. ANIMATION AND MULTIMEDIA degree programme will have a curriculum with SylPi consisting of following type of courses: -

A. **Core Courses:** A course, which should be studied compulsorily by a candidate as a necessary requirement is termed as a core course.

- **Major: Compulsory Course**
- **Minor: Use their minor course to focus or specialized certain area**
- **Skill/ Vocational: Skill Enhancement**
- **Multidisciplinary Course: Introduce for another course**

A. **Elective Course:** Generally, a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.

- **Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
- **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/ faculty member is called dissertation/project.

A. **Major Specific Elective courses (MSE):** Elective courses offered under the major: Management/ Economics/History/Sociology/Political science/Philosophy/Public administration shall be referred to as major specific electives.

A. **Open Elective Courses (OE):** Open electives courses offered under the related stream/disciplines (Languages/Performing and visual arts) and those under the unrelated streams/disciplines (Physical and chemical sciences/Mathematical, Management and computational sciences) to seek exposure beyond main discipline of choice shall be referred to as open elective courses.

As per UGC Guidelines:

Outline of Choice Based Credit System:

1. Core Course: A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
 2. Elective Course: Generally, a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
 - 2.1 Discipline Specific Elective (DSE) Course: Elective courses may be offered by the main discipline/subject of study referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
 - 2.2 Dissertation/Project: An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called a dissertation/project.
 - 2.3 Generic Elective (GE) Course: An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.
- P.S.: A core course offered in a discipline /subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. Ability Enhancement Courses (AEC): The Ability Enhancement (AE) Courses may be of two kinds: Ability Enhancement Compulsory Courses (AECC) and Skill Enhancement Courses (SEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement;
 - a. Environmental Science and
 - b. English/MIL Communication

These are mandatory for all disciplines.

SEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.

3.1 Ability Enhancement Compulsory Courses (AECC): Environmental Science, English Communication/ MIL Communication.

3.2 Skill Enhancement Courses (SEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.

*** Introducing Research Component in Under-Graduate Courses**

Project work/Dissertation is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

Points to be considered

- The NEP 2020 offers the students the option of choosing a 01-year Diploma, a 03 years bachelor degree or a 04 years bachelor degree with research across disciplines.

GENERAL COURSE STRUCTURE & THEME

A. Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (P) per week	1 Credit

B. Course code and definition:

Course code	Definitions
L	Lecture
T	Tutorial
P	Practical
CC	Core Courses

AEC	Ability Enhancement Courses
MDE	Multi-Disciplinary Elective course
VAC	Value added Courses
SEC	Skill Enhancement courses
DSE	Discipline Specific Elective
OE	Open Elective

Course Name: Bachelor in Computer Application, Bachelor in Computer Application (Honours) and Bachelor in Computer Application (Honours with Research)



Course Level/Duration/System:

Undergraduate / Three or Four years/6 or 8 Semesters with multiple entry and exit. The following option will be made available to the students joining B.SC. ANIMATION AND MULTIMEDIA Research Program:

- a) **One year:** Under Graduate Certificate in Computer Application (**Total Credits:50**)
- b) **Two years:** Under Graduate Diploma in Computer Application (**Total Credits:97**)
- c) **Three years:** Bachelor in Computer Application (B.SC. ANIMATION AND MULTIMEDIA) (**Total Credits:147**)
- d) **Four years:** Bachelor in Computer Application with Honours: B.SC. ANIMATION AND MULTIMEDIA (Honours) or Bachelor in Computer Application Honours with Research: B.SC. ANIMATION AND MULTIMEDIA (Honours with Research) (**Total Credits:195**)

Minimum Eligibility Criteria:

Minimum eligibility criteria for opting the course in the fourth year will be as follows:

- 1. **B.SC. ANIMATION AND MULTIMEDIA (Honours with Research):** B.SC. ANIMATION AND MULTIMEDIA Degree
- 2. **For B.SC. ANIMATION AND MULTIMEDIA (Honours):** B.SC. ANIMATION AND MULTIMEDIA Degree

Note: The students who are eligible for B.SC. ANIMATION AND MULTIMEDIA (Honours with Research) shall have choice to pursue either B.SC. ANIMATION AND MULTIMEDIA (Honours) or B.SC. ANIMATION AND MULTIMEDIA (Honours with Research)

SEMESTER WISE CREDIT DISTRIBUTION:

SEMESTER WISE CREDIT DISTRIBUTION OF PROPOSED B.SC. ANIMATION AND MULTIMEDIA [B.SC. ANIMATION AND MULTIMEDIA (HONOURS) AND B.SC. ANIMATION AND MULTIMEDIA (HONOURS WITH RESEARCH)] PROGRAM:

COURSE SCHEME

B.Sc. (Animation & Multimedia)

Semester 1

I. Theory Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT151	Principle of Animation	4:0:0	4:0:0	4	4
2.	Major Course	AMT153	Introduction to Information Theory and Applications	4:0:0	4:0:0	4	4
3.	Major Course	AMT163	Indian Knowledge System (Ancient Indian Innovations in Computer Technology)	3:0:0	3:0:0	3	3
4.	AEC	AEC0010	Communication Skills-I	2:0:0	2:0:0	2	2
5.	VAC	VAC VAC013	Value Added Course (women empowerment)	3:0:0	3:0:0	3	3

II. Practical Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT155	Story Design & Development (P)	0:0:4	0:0:2	4	2
2.	Major Course	AMT157	Digital Photography (P)	0:0:4	0:0:2	4	2
3.	Major Course	AMT159	Experimental Animation (P)	0:0:4	0:0:2	4	2
4.	Major Course	AMT161	Introduction to Information Theory and Applications (P)	0:0:4	0:0:2	4	2
5.	PT	PT101/ PT103/ PT105	Physical Training (NSO/NCC/NSS)	0:0:2	NC	2	NC

Total Credits: 24
Total Contact Hours: 32

B.Sc. (Animation & Multimedia)

Semester 2

I. Theory Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT152	Color Theory and Image Graphics	3:0:0	3:0:0	3	3
2.	Minor Course	AMT154	Graphic Tools	3:0:0	3:0:0	3	3
3.	VAC	AEC- II	Jeevan Kaushal 2.0 (Communication Skills)	2:0:0	2:0:0	2	2
4.	VAC	EVS100	Value Added Course (Environmental Science)	4:0:0	4:0:0	4	4
5.	SEC	SEC008	Skill Enhancement Course (E-Filling of Income Tax Return)	3:0:0	3:0:0	3	3
6.	MDC	MDC001	Multidisciplinary Course (Graphic Designing (Animation & Multimedia))	1:0:2	1:0:2	3	3
7.	AEC	AEC001	Ability Enhancement Course (Functional English-I)	2:0:0	2:0:0	2	2

II. Practical Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT158	3D Animation	0:0:4	0:0:2	4	2
2.	Major Course	AMT160	Vector Graphics for Production	0:0:4	0:0:2	4	2
3.	Minor Course	AMT162	2D Animation	0:0:4	0:0:2	4	2
4.	PT	PT102/ PT104/ PT106	Physical Training (NSO/NCC/NSS)	0:0:2	NC	2	NC

Total Credits: 26

Total Contact Hours: 30

***Students exiting after one year have to do Vocational Course.**

After Year 1, Students are advised to take Social Responsibility & Community Engagement - encompassing Community Engagement with an NGO in the vacation time.

An UNDERGRADUATE CERTIFICATE IN COMPUTER APPLICATION will be awarded, if a student wishes to exit at the end of First year.

[Exit Criteria after First Year of B.Sc. AM Programme](#)

Students will have the option to exit the Bachelor of Science in Animation and Multimedia (B.Sc. AM) program after successfully completing the first year. Upon exit, they will be awarded a **UG Certificate in Animation and Multimedia**. To be eligible for this certificate, students must complete an additional 04 credits in one of the following areas:

1. **Skill-Based Subject:** A course designed to enhance practical and technical skills in the field of computer applications.
2. **Work-Based Vocational Course:** A vocational course offered during the summer term that emphasizes hands-on training and workplace readiness.
3. **Internship/Apprenticeship:** A professional internship or apprenticeship program in a relevant field, with a minimum duration of 08 weeks, which will take place after the second semester.
4. **Social Responsibility & Community Engagement:** Active engagement with an NGO or community organization for a minimum duration of 08 weeks, focusing on real-world problem-solving, social responsibility, and community service.

The mode and specifics of these additional credits will be determined by the respective **University/Admitting Body**, and students will be required to complete the 08-week program during the summer term following their second semester. The exiting students will clear the subject / submit the Internship Report as per the University schedule.

[Re-entry Criteria in to Second Year \(Third Semester\)](#)

The student who takes an exit after one year with an award of certificate may be allowed to re-enter into Third Semester for completion of the B.Sc. AM Program as per the respective University /Admitting Body schedule after earning requisite credits in the First year.

Semester 3

I.Theory Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT251	Fundamentals of Pre-Production	3:0:0	3:0:0	3	3
2.	Major Course	AMT253	Design and Communication Process	3:0:0	3:0:0	3	3
3.	SEC	SEC004	Skill Enhancement Course (Leadership Skills)	3:0:0	3:0:0	3	3
4.	VAC	VAC-II(JKM001)	Mulya Pravah 2.0 (Human Values and Professional Ethics)	2:0:0	2:0:0	2	2
5.	MDC	MDC072	Multidisciplinary Course (Human Rights)	3:0:0	3:0:0	3	3

II.Practical Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT255	3D Architectural Visualization	0:0:4	0:0:2	4	2
2.	Major Course	AMT257	3D Texturing & Shading	0:0:4	0:0:2	4	2
3.	Major Course	AMT259	3D Lighting	0:0:4	0:0:2	4	2
4.	Major Course	AMT261	Cinematography	0:0:4	0:0:2	4	2
5.	Minor Course	AMT263	Video Editing	0:0:4	0:0:2	4	2

Total Credits: 24

Total Contact Hours: 34

Semester 4

I. Theory Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT252	Essentials of Execution & Post-Production	4:0:0	4:0:0	4	4
2.	Minor Course	AMT254	History of Motion Picture Industry	3:0:0	3:0:0	3	3
3.	VAC	AEC- II	Jeevan Kaushal Life Skills 2.0 (Universal Human Values)	2:0:0	2:0:0	2	2
4.	AEC	AEC001	Ability Enhancement Course (Functional English-I)	3:0:0	3:0:0	3	3

II. Practical Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT256	3D Rigging	0:0:4	0:0:2	4	2
2.	Major Course	AMT258	3D Animation	0:0:4	0:0:2	4	2
3.	Major Course	AMT260	Architecture Pre-Viz Lighting & Rendering	0:0:4	0:0:2	4	2
4.	Major Course	AMT262	Motion Graphic	0:0:4	0:0:2	4	2
5.	Minor Course	AMT264	3D Dynamics	0:0:4	0:0:2	4	2

Note: Six Weeks Industrial/Institutional training to be evaluated in 5th Semester.

Total Credits: 22
Total Contact Hours: 32

National Higher Education Qualifications Framework (NHEQF 5)

Exit Criteria after Second Year of B.SC. AM Programme

Students will have the option to exit the Bachelor of Science in Animation and Multimedia (B.SC. AM) program after successfully completing the second year. Upon exit, they will be awarded a **UG Diploma in Animation and Multimedia**. To be eligible for this diploma, students must complete an additional 04 credits in one of the following areas:

1. **Skill-Based Subject:** A specialized course aimed at enhancing technical and practical expertise in computer applications.
2. **Work-Based Vocational Course:** A vocational course offered during the summer term, focused on building practical, industry-relevant skills.
3. **Internship/Apprenticeship:** A professional internship or apprenticeship with a minimum duration of 08 weeks, conducted after the fourth semester, offering hands-on experience in a relevant field.
4. **Social Responsibility & Community Engagement:** Involvement with an NGO or community-based organization for a minimum of 08 weeks, contributing to social initiatives and applying computer application knowledge to solve real-world challenges.
5. **Capstone Project:** Completion of a capstone project integrating the skills and knowledge gained during the first two years of the program, which can be an independent or group project.

The specific mode of completing the additional credits will be decided by the respective **University/Admitting Body**, and students will be required to complete the 08-week program or project during the summer term following their fourth semester. Students opting for this exit will also be required to **submit an Internship/Apprenticeship Report** or complete the Capstone Project as per the schedule outlined by the University/Admitting Body before they are awarded the UG Diploma.

Re-entry Criteria in to Third Year (Fifth Semester)

The student who takes an exit after second year with an award of Diploma may be allowed to re-enter into fifth Semester for completion of the B.SC. AM Program as per the respective University / Admitting Body schedule after earning requisite credits in the Second year.

Semester 5

I. Theory Subjects

S No.	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	Major Course	AMT301	Fundamentals of aesthetics	4:0:0	4:0:0	4	4
2	Major Course	AMT303	Media Theory	4:0:0	4:0:0	4	4
3	ID	EVS001*	Environmental Science	3:0:0	3:0:0	3	3

II. Practical Subjects (Choice Based Specialization)

S No.	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	Major Course	AM****	SPECIALIZATION - CG ASSEST DEVELOPMENT	0:0:4	0:0:2	16	8
2	Major Course	AM****	SPECIALIZATION - VISUAL EFFECTS				
3	Major Course	AM****	SPECIALIZATION - Animation				
4	P	AMT333	Minor Project	0:0:6	0:0:3	6	3

Note: In this semester, SPECIALIZATION: 4 subjects are offered to students, and each subject has 2 credits.

Total Credits: 22

Total Contact Hours: 35

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SPECIALIZATION - CG ASSEST DEVELOPMENT

S No.	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	Major Course	AMT305	Hard Surface Modeling Lab	0:0:4	0:0:2	4	2
2	Major Course	AMT307	Texturing & Shading for Production Lab	0:0:4	0:0:2	4	2
3	Major Course	AMT309	Architecture Pre-Viz - Advanced Modeling & Texturing Lab	0:0:4	0:0:2	4	2
4	Major Course	AMT311	Digital Sculpting Lab	0:0:4	0:0:2	4	2

SPECIALIZATION - VISUAL EFFECTS

S No.	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	Major Course	AMT315	Tracking and Match Moving	0:0:4	0:0:2	4	2
2	Major Course	AMT317	Compositing for VFX	0:0:4	0:0:2	4	2
3	Major Course	AMT319	Chroma Lab	0:0:4	0:0:2	4	2
4	Major Course	AMT321	Lighting & Rendering for VFX	0:0:4	0:0:2	4	2

SPECIALIZATION - Animation

S No.	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	Major Course	AMT325	Body Mechanics Lab	0:0:4	0:0:2	4	2
2	Major Course	AMT327	Rigging for Production Lab	0:0:4	0:0:2	4	2
3	Major Course	AMT329	Acting for Animation Lab	0:0:4	0:0:2	4	2
4	Major Course	AMT331	Pre-Visualization Lab	0:0:4	0:0:2	4	2

Semester 6

I. Theory Subjects

S No.	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	Major Course	AMT302	Publicity Designing & Media Laws	4:0:0	4:0:0	4	4
2	Major Course	AMT304	Special Effects in Feature Films	4:0:0	4:0:0	4	4

II. Practical Subjects

S No.	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	P	AMT306	Major Project	0:0:10	0:0:5	10	5
2	Major Course	AM****	SPECIALIZATION - CG ASSEST DEVELOPMENT	0:0:4	0:0:2	12	6
3	Major Course	AM****	SPECIALIZATION - VISUAL EFFECTS				
4	Major Course	AM****	SPECIALIZATION - Animation				

***Note: In this semester, SPECIALIZATION: 3 subjects are offered to students, and each subject has 2 credits.**

Total Credits: 19
Total Contact Hours: 30

BACHELOR IN Animation and Multimedia Degree will be awarded, if a student wishes to exit at the end of Third year.

[Exit Criteria after Third Year of B.SC. AM Programme](#)

The students shall have an option to exit after 3rd year of Computer Application Program and will be awarded with a Bachelor of Science in Animation and Multimedia.

[Re-entry Criteria in to Fourth Year \(Seventh Semester\)](#)

The student who takes an exit after third year with an award of B.SC. AM may be allowed to re-enter in to Seventh Semester for completion of the B.SC. AM (Honours) or B.SC. AM (Honours with Research) Program as per the respective University / Admitting Body schedule after earning requisite credits in the Third year.

SPECIALIZATION - CG ASSEST DEVELOPMENT

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT308	Character Modeling & Sculpting	0:0:4	0:0:2	4	2
2.	Major Course	AMT310	Lighting & Rendering for Production	0:0:4	0:0:2	4	2
3.	Major Course	AMT312	Architecture Pre-Viz - Advanced Lighting & Rendering	0:0:4	0:0:2	4	2

SPECIALIZATION - VISUAL EFFECTS

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT314	Art of Compositing	0:0:4	0:0:2	4	2
2.	Major Course	AMT316	Fluid Fx Simulation	0:0:4	0:0:2	4	2
3.	Major Course	AMT318	Dynamics for Effect Animation	0:0:4	0:0:2	4	2

SPECIALIZATION - VISUAL EFFECTS

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT320	Lip Sync and Facial Animation	0:0:4	0:0:2	4	2
2.	Major Course	AMT322	Muscle System	0:0:4	0:0:2	4	2
3.	Major Course	AMT324	Prop Animation	0:0:4	0:0:2	4	2

Semester 7(For Research Option Student)

II. Theory Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT451	Design & Communication Process	4:0:0	4:0:0	4	4
2.	Minor Course	AMT453	Introduction to 3D	4:0:0	4:0:0	4	4
3.	Minor Course	AMT455	Introduction to Research Methodology	3:1:0	3:1:0	4	4

III. Practical Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT457	Lab on Design & Communication Process	0:0:4	0:0:2	4	2
2.	Major Course	AMT459	Minor Project-II	0:0:4	0:0:2	4	2
3.	Minor Course	AMT461	Corel Draw	0:0:4	0:0:2	4	2
4.	Major Course	AMT463	Research Synopsis	0:0:8	0:0:4	8	4
5.	IT	AMT465	Six Week Industrial/ Institutional Training	0:0:0	0:0:2	0	2

Total Credits: 24
Total Contact Hours: 32

Semester 8 (For Research Option Student)

I. Theory Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT452	History of Visual Effects	4:0:0	4:0:0	4	4
2.	Minor Course	AMT456	Portfolio Graduating Project	4:0:0	4:0:0	4	4
3.	Minor Course	AMT456	Research and Publication Ethics	3:0:0	3:0:0	3	3

II. Practical Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT458	Photography and Cinematography	0:0:4	0:0:2	4	2
2.	Major Course	AMT460	Character Design and Development	0:0:4	0:0:2	4	2
3.	Major Course	AMT462	Advanced Texturing and Shading	0:0:4	0:0:2	4	2
4.	Major Course	AMT468	Dissertation	0:0:8	0:0:4	8	4

Total Credits: 25
Total Contact Hours: 31

UNIVERSITY
KHIALA, DISTT. JALANDHAR (PUNJAB)

Semester 7 (For Research Honours Student)

I. Theory Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT451	Design & Communication Process	4:0:0	4:0:0	4	4
2.	Minor Course	AMT453	Introduction to 3D	4:0:0	4:0:0	4	4
3.	Minor Course	AMT455	Introduction to Research Methodology	3:1:0	3:1:0	4	4

II. Practical Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT457	Lab on Design & Communication Process	0:0:4	0:0:2	4	2
2.	Major Course	AMT459	Minor Project-II	0:0:8	0:0:4	8	4
3.	Minor Course	AMT461	Corel Draw	0:0:4	0:0:2	4	2
4.	Major Course	AMT463	Research Synopsis	0:0:8	0:0:4	8	4
5.	IT	AMT465	Six Week Industrial/ Institutional Training	0:0:0	0:0:2	0	2

Total Credits: 18

Total Contact Hours: 20

Semester 8 (For Research Honours Student)

I. Theory Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT452	History of Visual Effects	4:0:0	4:0:0	4	4
2.	Minor Course	AMT456	Portfolio Graduating Project	4:0:0	4:0:0	4	4
3.	Minor Course	AMT456	Research and Publication Ethics	3:0:0	3:0:0	3	3

II. Practical Subjects

S No	Course Type	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1.	Major Course	AMT458	Photography and Cinematography	0:0:4	0:0:2	4	2
2.	Major Course	AMT460	Character Design and Development	0:0:4	0:0:2	4	2
3.	Major Course	AMT462	Advanced Texturing and Shading	0:0:4	0:0:2	4	2
4.	Major Course	AMT468	Dissertation	0:0:8	0:0:4	8	4

Total Credits: 25
Total Contact Hours: 31

UNIVERSITY
KHIALA, DISTT. JALANDHAR (PUNJAB)

B.Sc. (Animation & Multimedia)
Semester 1



Course Code	AMT151
Course Title	Principle of Animation
Type of Course	Major
L T P	4:0:0
Credits	4
Course pre-requisite	Knowledge of Principle of Animation
Course Objective (CO)	The main objective of this subject is to impart strong knowledge about the fundamental principles of animation in addition to an invaluable appreciation for observational techniques & the art of planning.
Course Outcomes (CO)	The student will be able to: 1. Understand how to create realistic and impressive animation. 2. Produce an illusion of characters adhering to the basic laws of physics. 3. Get knowledge of Cel Animation Processes. 4. Understand the process of computer Animation in 2D and 3D.

SYLLABUS

UNIT-I

What is Animation: -Its definition, early examples of Animation.

History of Animation: - Stop Motion Photo Animation, Zoetrope, Thaumatrope, Cel and Paper Animation, early Disney's Cel Animation Processes.

Types of Animation: - Cel Animation, Stop Motion Animation, Computer Animation, 2-D Animation, 3-D Animation.

UNIT-II

Skills for an Animation Artist: -Visual and creative development of an Artist, importance of observation with minute details, efficiency to draw gestures, facial expressions, good listener, hard work and patience, creative and innovative.

UNIT III

Basic Principles of Animation: - Illusion of Life, straight action and pose to pose Timing, Exaggeration, Drama and Psychological Effect, Fade in and fadeout, Squash and Stretch, Anticipation, staging, follow through and overlapping action, Arcs, Solid Drawing, Appeal, slow in and slow out, Secondary Action.

UNIT-IV

Various Terms: -Animation Drawings/Cels, Rough Drawings, Clean ups, Color reference drawings, Layout, Model Sheet, Key Drawings and in Between, Master Background, Concept Piece, Character drawing, Story Board.

RECOMMENDED BOOKS			
Sr. No	Author(s)	Title	Publisher
1.	Chris Patmore	The complete animation course	Baron's Educational Series. (New York)

Course Code	AMT153
Course Title	Introduction to Information Theory and Applications
Type of Course	Minor
L T P	2 1 0
Credits	3
Course Prerequisites	Basics of Computer
Course Objective	The objective of this course is to prepare students with the latest knowledge in Computer Hardware & Networking.
Course Outcome (CO)	The student will able to: 1. Learn Basic Computer Concepts 2. Become aware of some of the ways that information technology continues to change everything 3. Prepare students with the latest knowledge in Computer Hardware & Networking. 4. Prepare students with the latest. Software and relationship between Hardware and software

SYLLABUS

UNIT I:

Information - Definition, Characteristics & Interpretation, Data & it's logical & physical concepts, Windows OS and its installation, Control Panel

Computers: History of Computers and their classification, Block Diagram of Computer, Basic Organization, Memory: - Units of memory, bit, byte, word, Primary RAM, ROM, EPROM etc. Secondary: - Magnetic-Floppy and Hard disks. Optical: - CDROM, WORM etc. Concept of Virtual Memory and Cache Memory and their needs, Computer Operation, Instruction Cycle, Program flow of control with and without interrupts

Computer Arithmetic: - Number systems binary, Octal, Hexadecimal, Binary Addition, Subtraction and Multiplication, Floating point representation and arithmetic.

UNIT II:

Input/ Output Peripherals: Keyboard, Mouse, Joy stick, Digitizer, Light Pen, track Ball, Voice and Speech Recognition, Scanners, Vision Input Output Devices, Monitor, Printer, Plotter.

UNIT III:

Computer Software: Software, Relationship between Hardware and Software, Logical System Architecture showing relationship between hardware

Types of Software: System Software, Application Software, Firmware, Functions of System Software

Types of System Software: Operating Systems, Language Translators, Utility Programs, Communications Software.

UNIT IV:

Application Software: Word Processing, Spreadsheet, Database, Graphics Personal Assistance, Education, Entertainment Software.

Networks: Type of Networks (LAN, MAN, WAN, etc), Network configuration: Basic ISO - OSI, Protocols: - Protocol and its need, Internet -Introduction to Internet terminologies and concept of WWW, HTTP, e-mail, Search engine, Domain name etc.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Computer Organization & Architecture- Designing & Performance	William Stallings	Prientice Hall of India
2.	Computer Networks	Andrew S. Tanenbaum	Prientice Hall of India
3.	Information Technology the Breaking Wave	Denis P Curtin, Kim Foley, Kunal Sen, Cathleen Morin	TMG



Course Code	CSAICS01
Course Title	Indian Knowledge System (Ancient Indian Innovations in Computer Technology)
Type of Course	Major
L T P	3:0:0
Credits	3
Course Prerequisites	Basic historical, mathematical and computational concepts.
Course Objective(s)	To explore ancient Indian contributions to mathematics, logic, and computational concepts that influenced the development of modern computer technology, fostering an appreciation of India's intellectual heritage and its relevance to contemporary innovation.
Course Outcome (CO)	The students will be able to: 1. Understand the historical evolution of computational concepts in ancient India. 2. Analyze the contributions of Indian mathematicians and scholars to algorithms, number systems, and logic. 3. Relate ancient Indian knowledge to modern computer science principles. 4. Apply interdisciplinary approaches to connect IKS with contemporary technological challenges.

SYLLABUS

UNIT I: Introduction to Indian Knowledge System and Computational Thought:

Introduction to Indian Knowledge Systems, their interdisciplinary nature and relevance to modern science and technology. Ancient Indian Scientific Traditions: Role of Vedas and Shulba Sutras in fostering systematic thinking. Computational Thinking in Ancient India.

UNIT II: The Concept of Zero and the Decimal System: Origin of Zero (Shunya):

Contributions of Indian mathematicians (Brahmagupta, Aryabhata) to the concept of zero as a number and placeholder. Decimal Place-Value System: Development and significance in arithmetic operations, its impact on modern computing algorithms.

UNIT III: Algorithms and Mathematical Innovations: Aryabhata's Algorithms and their relevance to computational algorithms. Bhaskaracharya's Contributions: Vedic Mathematics.

UNIT IV: Interdisciplinary Applications and Modern Relevance: Ancient Indian

Innovations in Technology: Metallurgy, architecture, and water management systems as examples of systematic engineering thought. Relevance to Modern Computer Science: How ancient concepts of zero, algorithms, and logic underpin binary systems, data structures, and AI.

RECOMMENDED BOOKS			
Sr. No.	Name	Author(s)	Publisher
1.	Introduction to Indian Knowledge System: Concepts and Applications	Mahadevan, B., Bhat, V. R., & Nagendra, P. R. N.	PHI Learning. ISBN: 978-9391818203

2.	History of Technology in India, Vol. I	Bag, A. K.	Indian National Science Academy, New Delhi.
3.	Indian Knowledge Systems Vol. I & II	Kapoor, K., & Singh, A.	Indian Institute of Advanced Study, Shimla.



Course Code	AEC0010
Course Title	Communication Skills-I
Type of Course	AEC
L T P	2:0:0
Credits	2
Course Prerequisites	+2 in any stream
Course Objective(s)	The course will introduce learners to the role and importance of effective communication at work. It presents theories and principles of communication responsible for good interpersonal interaction. Students will be prepared to communicate effectively in a variety of contexts and different mediums. The Units are structured around the communication tasks of managers.

SYLLABUS

UNIT-I: Basics of Communication Skills: Communication, Process of Communication, Types of Communication Verbal and Non-verbal communication, Channels of Communication- Upward, Downward, Horizontal, Barriers to Communication, Role of Communication in society.

UNIT-II: Listening Skills: Listening Process, Hearing and Listening, Types of Listening, Effective Listening, Barriers to Effective Listening, Note Taking. **Reading Skills:** Purpose of reading, Process of reading, reading skills Models and strategies, scanning, skimming, SQ3R, Approaches of Reading, Comprehension passages for practice.

UNIT-III: Purpose of writing, Effective writing, Types of writing, Business Correspondence, Precis writing, Memo writing, Minutes of meeting.

UNIT-IV: Speaking Skills: Speech Mechanism, Sounds System, Articulation, Vowels & Consonants, Skills for effective speaking, Role of audience, Feedback Skill, Oral Presentation.

RECOMMENDED BOOKS			
Sr. No.	Name	Author(s)	Publisher
1.	Bhupender Kour	Effectual Communication Skills	S.K. Kataria and Sons
2.	Communication Skills	D. Dutta Roy and K.K. Dheer	Vishal Publishing Company

AMT155 Story Design & Development (P)

L T P
0 0 2

Objective:

This Course lay strong foundation to story visualization ability for Animation. Introduce methods and techniques of story writing and Visual narration of the story with thumbnails and images.

Story: Elements of story – Resources and ideas from life Narrative modes Aesthetics of narration Narrative point of view.

Voices of the story Character voice Unreliable voice Epistolary voice.

Structuring the story Setting mood Rising action Falling Action Dénouement Resolution Story Genres.

Characters and the story - Developing Characters, Story, Telling and its relevance in society- character driven stories – Event driven stories.



AMT157 Digital Photography (P)

L T P
0 0 2

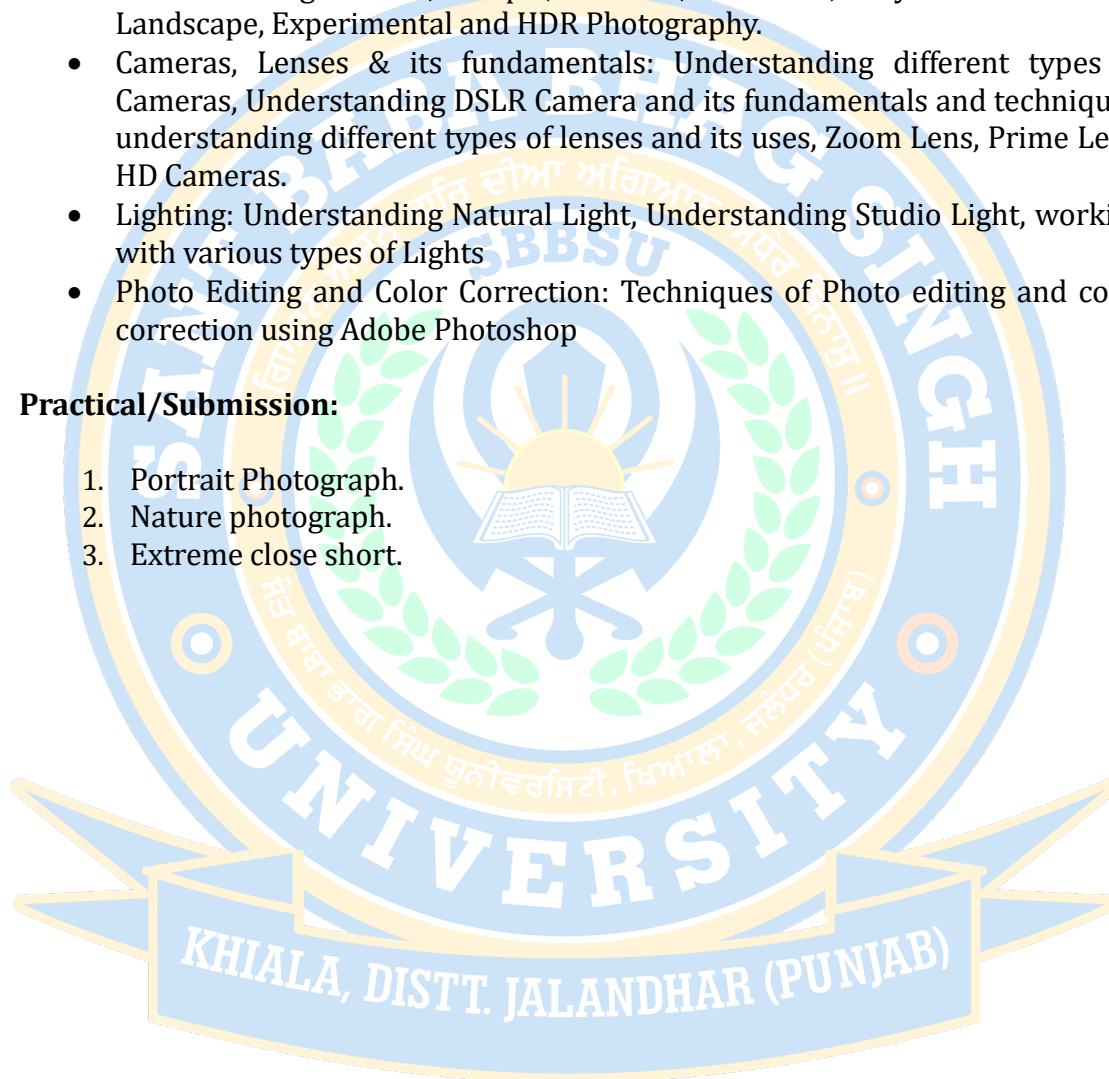
Objective:

The course aims to equip the students with history of photography and camera. The course includes about working of DSLR camera, photography and Editing software such as Adobe Photoshop be used for Picture editing.

- Introduction to Photography: Origin of Photography, History of Camera, and Early-stage challenges, Building blocks, Lenses and Cameras. Understanding Framing, Understanding Composition, and Understanding Rule of third. Understanding Nature, People, Product, Still Life, City & Architecture, Landscape, Experimental and HDR Photography.
- Cameras, Lenses & its fundamentals: Understanding different types of Cameras, Understanding DSLR Camera and its fundamentals and techniques, understanding different types of lenses and its uses, Zoom Lens, Prime Lens. HD Cameras.
- Lighting: Understanding Natural Light, Understanding Studio Light, working with various types of Lights
- Photo Editing and Color Correction: Techniques of Photo editing and color correction using Adobe Photoshop

Practical/Submission:

1. Portrait Photograph.
2. Nature photograph.
3. Extreme close short.

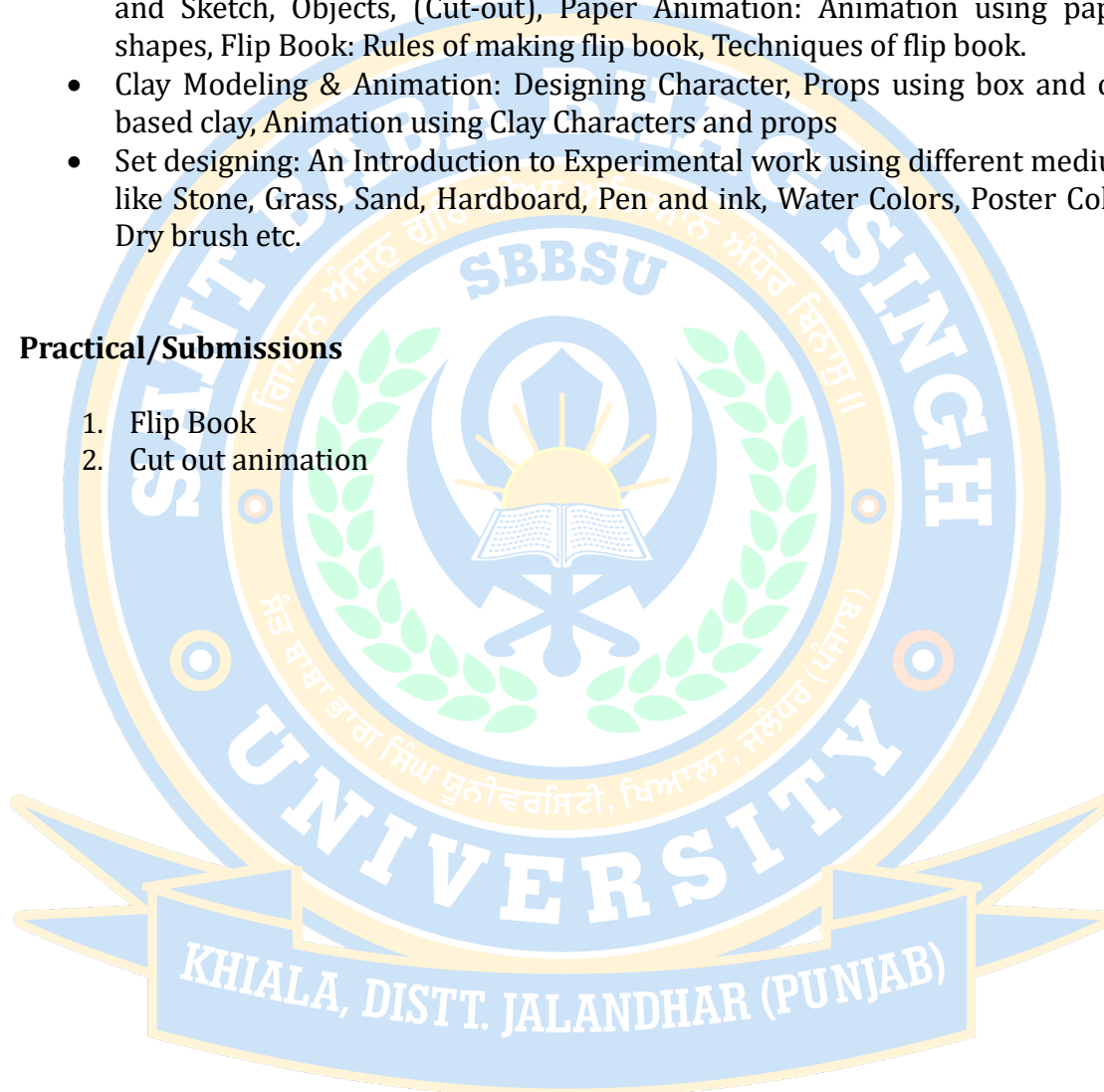


Objective: The course includes storyboarding concept and how to create a storyboard for a project, Students will able to create different types of traditional animation techniques like flipbook, stop motion, clay animation etc.

- Storyboarding: Rules of making storyboard, Techniques of Storyboard.
- Animation: Stop motion Animation, stop motion using (Video), Photograph, and Sketch, Objects, (Cut-out), Paper Animation: Animation using paper shapes, Flip Book: Rules of making flip book, Techniques of flip book.
- Clay Modeling & Animation: Designing Character, Props using box and oil-based clay, Animation using Clay Characters and props
- Set designing: An Introduction to Experimental work using different medium like Stone, Grass, Sand, Hardboard, Pen and ink, Water Colors, Poster Color, Dry brush etc.

Practical/Submissions

1. Flip Book
2. Cut out animation



Semester 2



Course Code	AMT154
Course Title	Graphic Tools
Type of Course	Major
L T P	3:0:0
Credits	3
Course Prerequisites	Basic knowledge of computers
Course Objective	The objective of study is to make students efficient in the working of MS-Word, MS-Excel, Power Point & MS Access
Course Outcome (CO)	The students will be able to: 1. Use knowledge of HTML and CSS code and an HTML editor to create personal and/or business websites following professional and industry standards. 2. Implement HTML coding and its tags. 3. Use critical thinking skills to design and create websites. 4. Understand cascading style sheets and java script with HTML

SYLLABUS

UNIT I:

Introduction to HTML: Overview of HTML. Rules of HTML documents. Structure of HTML documents, Tags-Definition, Classification of Tags. Basic Tags-HTML, U.R.L. concept. Hyperlink (Anchor) Tag & its attribute, Creating Email Hyperlinks. Introduction: Image & image formats. tag & its attributes. Using Images as links. Image Map- Client side & Server-side Image maps.

UNIT II:

Tables, Frame and Frame: Introduction to Tables. Table Tags: TABLE, TR, TH, TD & all Attributes. Rowspan, Colspan, Cellspacing, Cellpadding. Table examples, Overview of frames. FRAMESET & FRAME tags & its attributes. Simple frame Examples. Introduction to forms. FORM tag & its attributes and tags (Action, Method, Name)

UNIT III:

Cascading Style Sheets: Declaration, Types of CSS: External CSS, Internal CSS, Inline CSS. Applications of CSS

Java Script: Introduction, adding script to documents, Data types, operators, Variables, Input and Output statements, looping statements: While, Do-While, For loop.

UNIT III:

Photoshop: The Photoshop Environment, Understanding Workspace, Pixel vs. Vector, File types, Selection Tools, Healing Tools Importing Files Understanding, Layers & Masking, how layers work, creating layers, blending modes, styles, renaming & grouping layers.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Teach yourself office 97/2000 for windows	Corey Sandler, Tambadgett, Jan Weingarten	BPB
2.	Microsoft Office 2000	COMPLETE	BPB
3.	Mastering Word 2000	Mansfield	BPB
Course Code		MDC001	

Course Title	Graphic Designing (Animation & Multimedia)
Type of Course	MDC
L T P	1:0:2
Credits	3
Course Prerequisites	Basics of Computer
Course Outcome (CO)	Upon successful completion of the course, the students should be able to: CO1: Work with digital graphics and color compositions. CO2: Create logical and aesthetical digital designs. CO3: Learn various techniques of creating matte paints. CO4: Create magazine covers and promotional material.

SYLLABUS

UNIT I

Principles of design: Balance, Proportion, Rhythm, Harmony and unity, Emphasis.

UNIT II

- **Photoshop:** Introduction to digital art and platform, Pixel, Raster, Vector, Bit depth, Resolution.
- **User Interface:** Basic setting and color, Canvas.
- **Working with Layers and Tools:** Layer management, understanding menu bar, retouching photo and images, Text, understanding tool bar, Understanding channels, Layer mask, Quick mask tool.
- **Composition and Color Correction:** Understanding compositing, Color correction tools and techniques.

UNIT III

Digital & Matte Painting: Understanding Digital painting, Tools and techniques of digital painting. Understanding concept of Matte painting, Tools and techniques of matte painting.

UNIT IV

Filter and Effects: Working with various filters and effects used in Photoshop for different kind of project work.

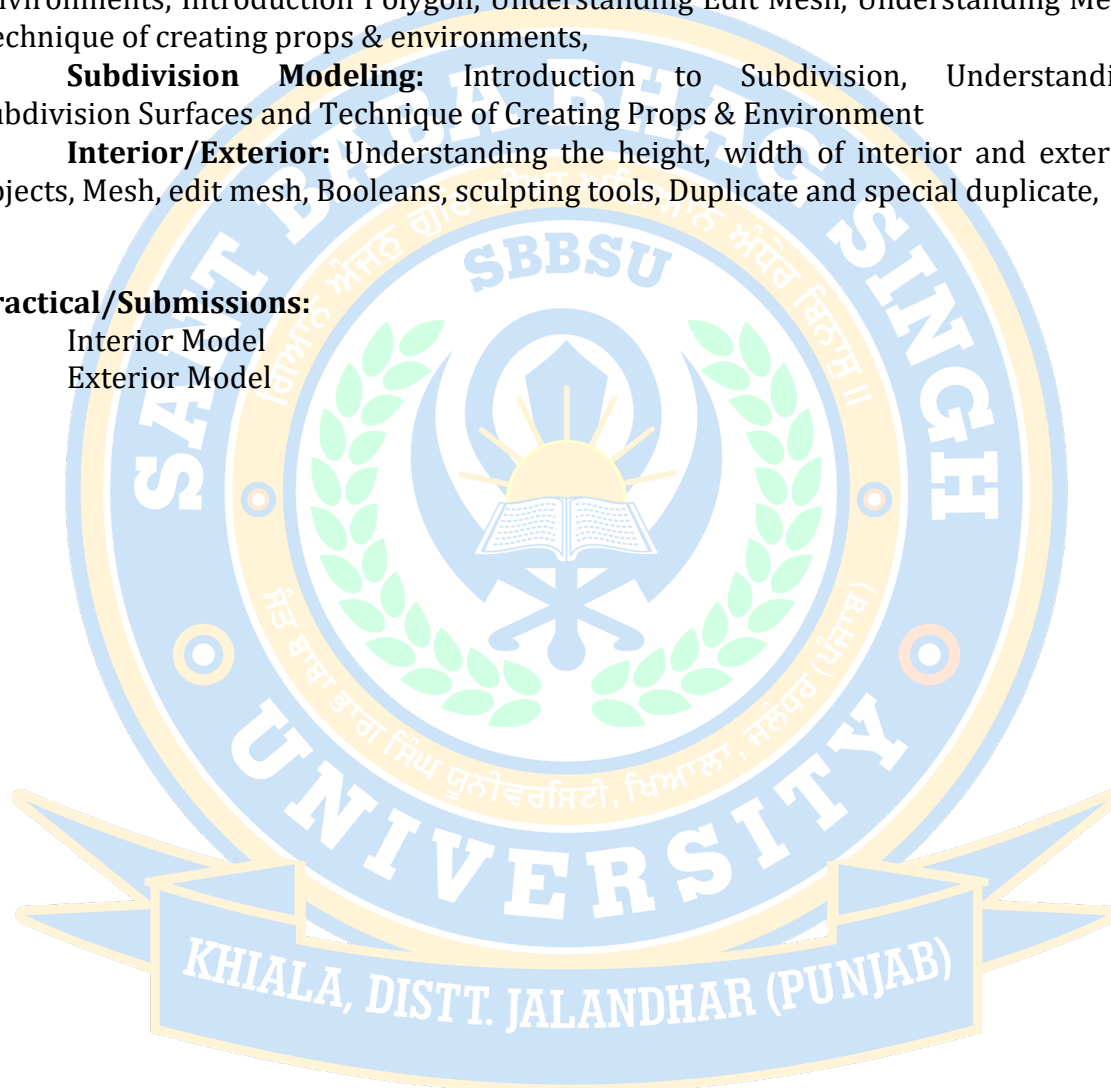
RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Universal Principles of Design	Lidwell William	Rockport Publishers (January 1, 2010)
2.	Adobe Photoshop CC classroom in a Book	Mark Galer and Philip Andrews	Focal Press; Pap/DVD edition. (26 July 2012)
3.	Digital Matte Painting	Kevin Musk	Kindle Edition (3 October 2021)

Objective: The course includes modeling of 3d object such as interior and exterior modeling and hard surface modeling.

- **Introduction to Maya:** Understanding User Interface, understanding 3D Concept, Understanding transforming objects, Nodes & Attributes, Preferences and customization.
- **Nurbs & Polygon Modeling:** Introduction to Nurbs, Understanding Surfaces, Understanding Edit Nurbs, Understanding Edit Curves, Techniques of creating Props & Environments, Introduction Polygon, Understanding Edit Mesh, Understanding Mesh, Technique of creating props & environments,
- **Subdivision Modeling:** Introduction to Subdivision, Understanding Subdivision Surfaces and Technique of Creating Props & Environment
- **Interior/Exterior:** Understanding the height, width of interior and exterior objects, Mesh, edit mesh, Booleans, sculpting tools, Duplicate and special duplicate,

Practical/Submissions:

1. Interior Model
2. Exterior Model



AMT160 Vector Graphics for Production

L T P
0 0 2

Objective: A study and use of vector graphics for production. Skill development in the use of the tools and transformation options of Adobe Illustrator to create complex vector illustrations for print and web-based media. Mastery in manipulation of both text and graphics with emphasis on the use of the pen tool as well as the correct use and management of different color modes.

Course Contents:

1. illustrator Workspace
2. File Management
3. Drawing with the Pen tool
4. Creating Compound Paths
5. Creating Shapes and Using Fills & Strokes
6. Image Trace and Puppet Warp
7. Point Type Basics, Area Type & Type on a Path
8. Creating Paragraph and Character Styles for Type
9. Using Text Wrap around Graphics
10. Using Libraries (Pantone Colors)
11. Layer Management
12. Using the Width Tool and Width Profiles
13. Converting Type to Outlines to Modify Letterforms

Practical/Submission:

1. Vector Pitcher
2. Visiting Card
3. Magazine Design
4. Poster Design
5. Website Banner Design



Objective: The main objective of this course is to provide students with an overall foundation of systems analysis and design to effectively and efficiently design and implement system.

Introduction: 2D graphics editing features: Basic geometric transformations – Boolean, operations on shapes – Object stroke attributes, Objects fill attributes Shading, techniques (blends – gradients) Packaged effects (extensions – plug- ins), Features specific to the program in use, History and future trends of computer animation application in the visual arts. Drawing in System, working with timeline, Working in flash

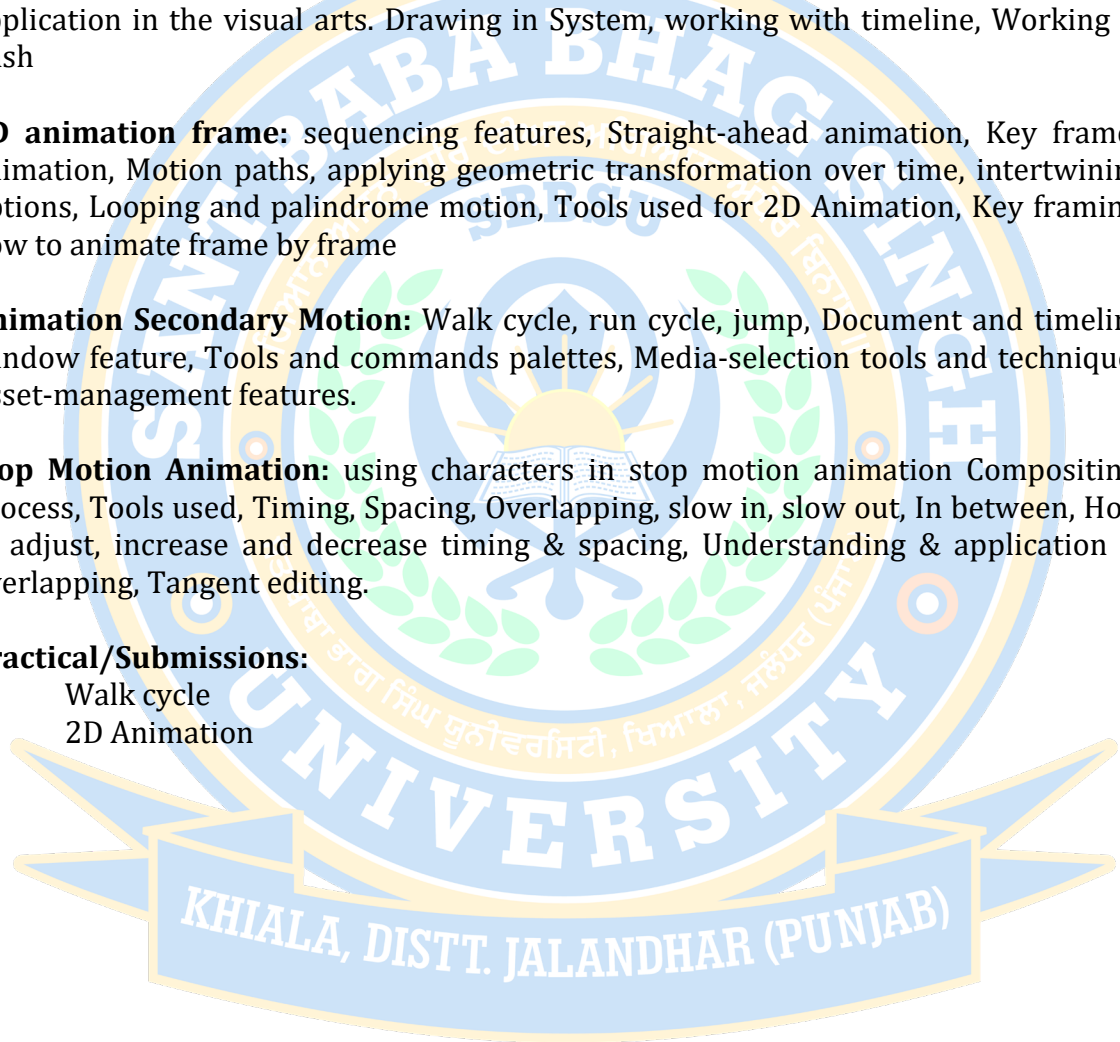
2D animation frame: sequencing features, Straight-ahead animation, Key frames animation, Motion paths, applying geometric transformation over time, intertwining options, Looping and palindrome motion, Tools used for 2D Animation, Key framing, how to animate frame by frame

Animation Secondary Motion: Walk cycle, run cycle, jump, Document and timeline window feature, Tools and commands palettes, Media-selection tools and techniques Asset-management features.

Stop Motion Animation: using characters in stop motion animation Compositing: Process, Tools used, Timing, Spacing, Overlapping, slow in, slow out, In between, How to adjust, increase and decrease timing & spacing, Understanding & application of overlapping, Tangent editing.

Practical/Submissions:

1. Walk cycle
2. 2D Animation





Semester 3

Course Code	AMT251
Course Title	Fundamentals of Pre-Production
Type of Course	Major
L T P	3:0:0
Credits	3
Course Prerequisites	Knowledge of Fundamentals of Pre-Production
Course Objectives	The main objective of the subject is to impart the knowledge of animation pre-production pipeline & workflow.
Course Outcomes (CO)	The students will able to: 1. Learn fundamentals of Pre-Production of Digital film making. 2. Get knowledge of animation pre-production pipeline & workflow. 3. Get knowledge of Essentials Elements of a story 4. Get knowledge of Visual appearance, Nature, Characteristics

SYLLABUS

UNIT 1:

Introduction to Pre-production: -

- The basics of Pre-Production.
- Importance of pre-Production in creating a Project.

Concept, Story writing: -

- Developing a Concept for Animation.
- Essentials Elements of a story: Start, Middle and Ending of a story.

UNIT II:

Screenplay: -

- Definition and Elements of Screenplay.
- Creating a Screenplay.

Character development: -

- Physical Attributes.
- Visual appearance.
- Nature.
- Characteristics.
- Model Sheet.

UNIT III:

Props & Environment development: -

- Props & Environment illustration.

- Blueprint.

Storyboarding: -

- Process of creating storyboard.
- Importance of storyboard in Film making.

UNIT IV:

Visual references: -

- Types of visual references.

Dubbing, Songs: -

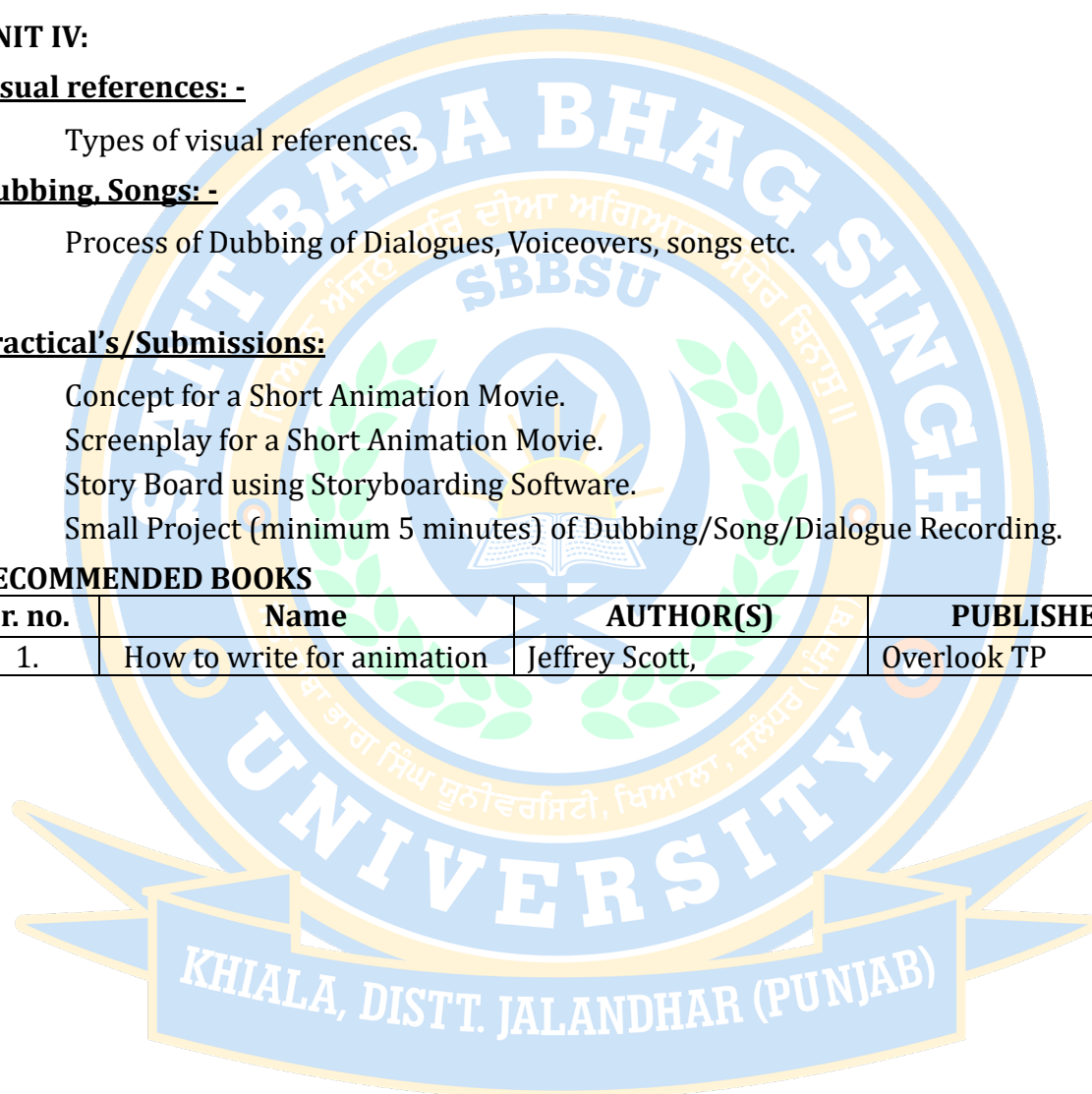
- Process of Dubbing of Dialogues, Voiceovers, songs etc.

Practical's/Submissions:

- Concept for a Short Animation Movie.
- Screenplay for a Short Animation Movie.
- Story Board using Storyboarding Software.
- Small Project (minimum 5 minutes) of Dubbing/Song/Dialogue Recording.

RECOMMENDED BOOKS

Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	How to write for animation	Jeffrey Scott,	Overlook TP



Course Code	AMT253
Course Title	Design and Communication Process
Type of Course	Major
L T P	3:0:0
Credits	3
Course Prerequisites	Knowledge of Design Process
Course Objective	To develop intellectual awareness and curiosity to acquire the knowledge necessary to sustain effective work in visual communication design.
Course Outcomes	The student will able to: 1. Understand the basics principles of composition 2. Get the knowledge of textures and materials 3. Get the knowledge of shapes and arcs 4. Understand the process of reflection and refraction

SYLLABUS

UNIT I:

Basic Principles of composition: -

Introduction

- What is composition
- Why learns these principles
- Fulfilling the purpose

The Subject

- Selection and study
- Drawing steps

Three Principles

- Unity
- Balance
- Center of interest

Achieving Emphasis

- Light and shade
- Details
- contrasts

UNIT II:

Six Visual elements: - Color, Line, Shape, Value & Tone, Texture, Volume. era.

Balance: - Asymmetrical balance, informal balance, radial balance.

UNIT III:

Complementary relations between art & Design: -

- Cognitive - Instrumental
- Abstraction of the concrete - concretization of the abstract
- Artist as notator - Designer as tool maker

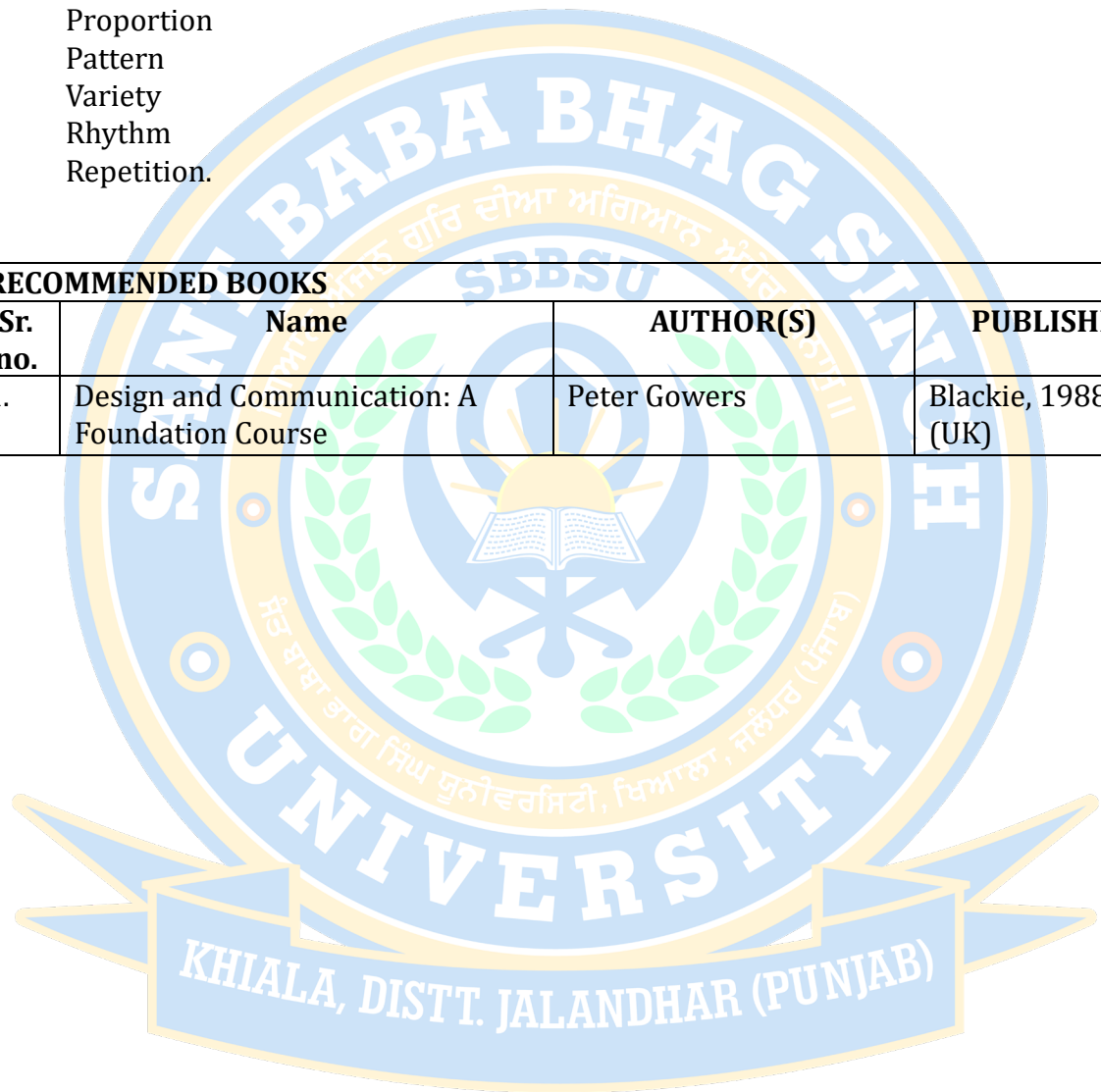
- Inductive, classificatory -deductive

UNIT IV:

Pictorial principles: -

- Contrast
- Harmony
- Emphasis
- Movement
- Proportion
- Pattern
- Variety
- Rhythm
- Repetition.
-

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Design and Communication: A Foundation Course	Peter Gowers	Blackie, 1988 pub. (UK)



Course Code	VAC-II(JKM001)
Course Title	Mulya Pravah 2.0 (Human Values and Professional Ethics)
Type of Course	Minor
L T P	2:0:0
Credits	2
Course Prerequisites	Nil
Course Objective(s)	To create an awareness on Engineering Ethics and Human Values. To study the moral issues and decisions confronting individuals and organizations engaged in engineering profession.
Course Outcomes	The students will able to: 1. Learn the need, guidelines and process of Value Education. 2. Understand the Harmony in the Human Being. 3. Understand the Harmony in the Family and Society. 4. Understand the Harmony in the Professional Ethics.

SYLLABUS

UNIT I

Introduction:Need, Basic Guidelines, Content and Process for Value Education
Understanding the need, basic guidelines, content and process for Value, Education. Self-Exploration- its content and process; Natural Acceptance and Experiential Validation- as the mechanism for self-exploration. Continuous Happiness and Prosperity- A look at basic Human Aspirations, Right understanding.

UNIT II

Understanding Harmony in the Human Being: Harmony in Myself! Understanding human being as a co-existence of the sentient, I and the material "Body" Understanding the needs of Self ("I") and "Body"-Sukh and Suvidha, Understanding the Body as an instrument of Understanding the characteristics and activities of "I" and harmony in "I".

UNIT III

Understanding Harmony in the Family and Society: Harmony in Human, Human Relationship Understanding harmony in the Family- the basic unit of human interaction, understanding values in human-human relationship, Trust (Vishwas) and Respect (Samman) as the foundational values of relationship Understanding the meaning of Vishwas; Difference between intention and competence Understanding the meaning of Samman, Difference between respect and differentiation.

Understanding Harmony in the Nature and Existence: Whole existence as Co-existence Understanding the harmony in the Nature, Interconnectedness and mutual fulfillment among the four orders of nature recyclability and self-regulation in nature.

UNIT IV

Professional Ethics: Implications of the above Holistic Understanding of Harmony on Professional Ethics Natural acceptance of human values, Definitiveness of Ethical Human Conduct, Basis for Humanistic Education, Humanistic Constitution and Humanistic, Universal Order Competence in professional ethics: Ability to utilize the professional competence for augmenting universal human order, Ability to identify the scope and characteristics of peoplefriendly and ecofriendly production systems.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	Small is Beautiful: a study of economics as if people mattered	E.F. Schumacher	Blond & Briggs, Britain.
2	Science and Humanism	PL Dhar, RR Gaur	Commonwealth Purblishers
3	Human Values	A.N. Tripathy	New International Publishers Age



Objective: Understand the mechanics of 3ds Max. Create 3d models using a variety of techniques. Work with materials to texture your models. Understand how to light a scene. Create animations. Stage a scene and understand cinematography

Course Contents:

- **Getting to Know 3ds Max:** - Touring the Interface, The Viewports, Getting to Know the Command Panel, Working with Objects, Transforming Objects, Copying an Object, Understanding the Perspective Viewing Tools, Using Multiple Viewports.
- **Introducing 3ds Max Objects:** - Understanding Standard Primitives, Adjusting Objects' Parameters, Accessing Parameters, Modeling Standard Primitives with Modifiers, Using the Modifier Stack Tools, Making Clones That Share Properties, Using Various Modifiers, Understanding Extended Primitives, Working with Groups.
- **Creating Shapes with Splines:** - Drawing using Splines, lathing a Spline, modifying a Shape Using Sub-Object Levels, Flipping Surface Normals, Creating Thickness with a Spline, Combining and Extruding Splines, Introducing Other Spline Types, Editing Splines
- **Editing Meshes and Creating Complex Objects:** - Polygon Modeling Techniques, Using Graphite Modeling Tools, creating buildings using modifiers.
- **Working with External Design Data:** - Importing AutoCAD Plans into 3ds Max, Extruding the Walls
- **Organizing and Editing Objects:** - Naming Objects, Organizing Objects by Layers, Setting Up Layers, Assigning Objects to Layers, Assigning Color to Layers, Lofting an Object, lofting a Shape Along a Path, Using Different Shapes Along the Loft Path, extruding with the Sweep Modifier, Aligning Objects.

Practical/Submission:

- Object modeling
- Virtual set.
- Credit sequences (for films and animation).
- 3D Animated Logo.
- Architectural walkthroughs.

Objective: To make students able to understand Role of texturing in 3D Pipeline.
To be able to understand natural behavior of textures and create similar in software's.

Texturing & Shading:

Introduction to texturing and shading,

working with Shader –

Blin, Phong and Lambert etc.

Working with Shader Properties –

Ambient, Diffuse, Specular, Shininess etc.

2D & 3D Procedural Maps.

Understanding UVW Map

Unwrapping Complex Meshes

Working with Maps Bump and Opacity, Reflection & Refraction.

Applying two materials on either sides of a surface

Planar, Cylindrical, Spherical

Basics of unwrapping the UVs

Transparency.

Alpha layering

Practical/Submissions:

1. Texturing interior model
2. Texturing exterior model

Objective: The course includes natural behavior of lighting and create similar in software's and knowledge of camera parameters.

Lighting:

Introduction to lighting,

Nature of light

Indoor & outdoor lighting

Understanding different types of Lights,

3 Point Light Setup,

Working with Advanced Properties,

shadows in Maya

Cameras in Maya

framing objects

Types of conventional cameras & its functioning

Lenses, exposure & focus

Depth of Field

Practical/Submissions:

1. Lighting on interior model

2. 3-point lighting



Objective: To impart practical knowledge about working of DSLR camera, cinematography. To learn about the Editing software Adobe Premiere to be used for video editing.

Video Pre-Production Process: Pre-production, Shooting and post-production, white balance, Aperture, Shutter speed, and focus in a video camera to optimize the picture quality in video images, utilize different shot types including the wide shot, establishing shot, long shot, medium shot, close up, point-of-view, and over-the-shoulder.

Introduction to Cinematography: Introduction to Digital Video Cinematography, Building blocks, Lenses and Cameras.

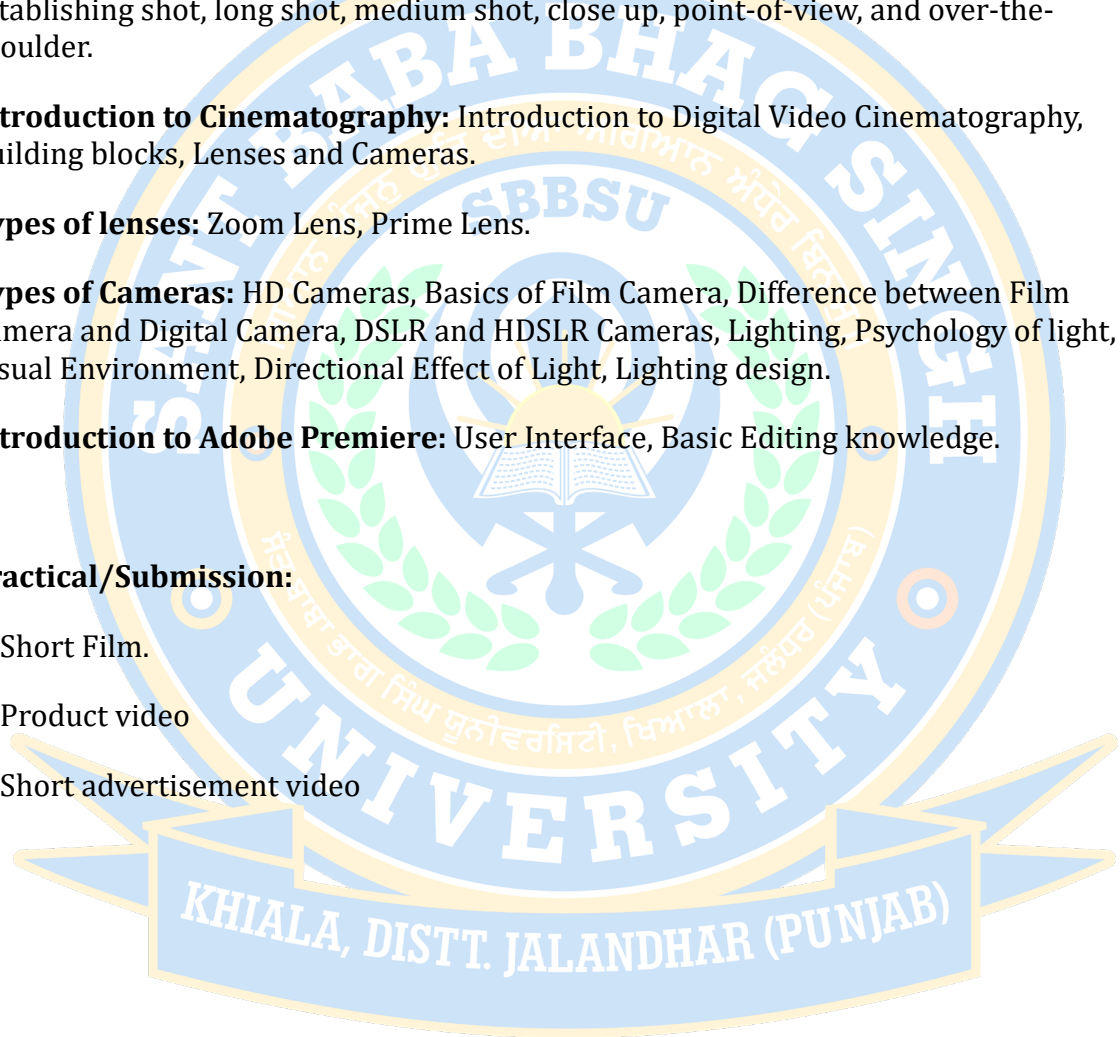
Types of lenses: Zoom Lens, Prime Lens.

Types of Cameras: HD Cameras, Basics of Film Camera, Difference between Film Camera and Digital Camera, DSLR and HDSLR Cameras, Lighting, Psychology of light, Visual Environment, Directional Effect of Light, Lighting design.

Introduction to Adobe Premiere: User Interface, Basic Editing knowledge.

Practical/Submission:

1. Short Film.
2. Product video
3. Short advertisement video



Objective: To make students learn about video Editing techniques used in Industry. To impart practical knowledge about Abode Premier used for video editing.

Introduction to Editing: Introduction and history of evolution of the specialized stream called Editing.

Develop an understanding of the digital video production process: pre-production, shooting, editing, and post-production, understanding importance of editing in the flow of a narrative, Pace and Rhythm in editing, Linear and Non-Linear Film Editing.

Editing with Premiere Pro: Working with Footage, Basic Video Editing, Composition and Animation tools, Title Designer, Photoshop Graphics, Video Transition Effects, and Nest Sequence, Working with Color correction, Audio Effects, and Video Output.

Understanding about: L cut and J cut, keyframing, Masking,

Audio editing: How to attach audio with video, Level, Pitch, Audio transition.

Practical/Submission:

1. Teaser.
2. One-minute edited video





Semester 4

Course Code	AMT252
Course Title	Essentials of Execution & Post-Production
Type of Course	Major
L T P	2:0:0
Credits	2
Course pre-requisite	Knowledge of post-production
Course Objectives	The main objective of the subject is to impart the knowledge about Animation execution, workflow & post-production.
Course outcomes (CO)	The student will able to: 1. Get the knowledge about Publicity Designing, promotion of Projects/Products which plays an important role in the success of the Project. 2. Get the knowledge about the Film Criticism /developing reviews. 3. Get the knowledge about Publicity Designing, promotion of Projects/Products which plays an important role in the success of the Project. 4. Get the knowledge about the Film Criticism /developing reviews.

SYLLABUS

UNIT-I

Modeling: - Types of 3D Modeling, Advantages & Disadvantages Polygon Modeling.

Texturing: - UV texturing: Texturing of Characters and Props. Shading: Different Maya Shaders.

UNIT-II

Lighting: Sources of light: Natural and artificial Lights, Types of lights in Maya, Types of Shadows in Maya,

Rigging: Joints, Inverse Kinematics, Forward Kinematics, Types of Skinning.

UNIT III

Animation: Types of Animation,

Rendering: Process, Types of Renderers,

Data Management: How to manage 3D Assets,

Compositing: Process, Tools used,

Visual Effects: Process of Nurbs modeling, Tools used

UNIT-IV

Music & Dubbing: Process, Tools used,

Editing: Process. Tools used,

Output: Types of Output format.

Course Code	AMT254
Course Title	History of Motion Picture Industry
Type of Course	Major
L T P	2:0:0
Credits	2
Course Prerequisites	Knowledge of Picture Industry
Course Objective	The main objective of the subject is to impart the knowledge about growth and development Motion picture industry.
Course outcomes (CO)	The student will able to: 1. Get the knowledge about Publicity Designing, promotion of Projects/Products which plays an important role in the success of the Project. 2. Understand about the Film Criticism /developing reviews. 3. Understand history of Indian television. 4. Understand distributed channels for television.

SYLLABUS

UNIT I:

Understanding television - Difference between television and cinema A window to the world? Issues of ownership and control; Television as a great unifier, educator and salesman.

History of Indian television: The first two decades of Indian television; Asian Games and setting up of the National Network; Gulf War and the rise of cable TV; Passing of the Broadcast Bill; Global TV channels on Indian soil; The present scenario.

UNIT II:

Evolution of Cinema - the early days, Emergence of the narrative cinema and American, German, French and Russian Cinema in the era of silent motion pictures, Advent of sound and color in motion picture, cinemas of the world in post salient motion picture era.

UNIT III:

Ratings & Economics of Production: Mechanisms of rating: The diary system; Set top boxes, TAM; Nielsen Corporation and other market research groups, Limitations and shortcomings of the rating system; sponsored programmers

Distribution channels for television: Cable TV and DTH system; Television on the internet and phone

UNIT IV:

Cinematograph Act 1952: Introduction and its role in Motion pictures Business, Significant Indian Films (Synopsis, Producer, Director, Actors.), Evolution of Film Indian Animation Film Industry and its Growth, Present scenario of Indian Film Industry.

Objective: The course includes 3d character Rigging and rigging techniques

- Introduction to Rigging: Introduction to Skeleton
- Introduction to Joints & Joint chain
- Introduction to Parent child Relationship
- Understanding Joints and hierarchies & Concept of Skeleton
- Introduction to Kinematics (IK & FK): Introduction to IK handle tool
- IK Solvers & IK Spline
- Intro to IK/FK arm & leg setup
- learning how to switch between IK/FK
- Skinning & Binding: Introduction to how to skin your character
- Introduction to types of Bind Skin
- Introduction to edit smooth Skin
- Deformers: Introduction to Deformers, Introduction how to create & edit deformers
- Understanding different types of deformers & their uses

Practical/Submissions:

1. Human skeleton setup.
2. switch between IK/FK.



Objective: The course includes understand the purpose of timing & emotion and to generate reference footage for animation.

- **Introduction to UI and Animation Tools:** Introduction to Time Slider, Introduction to Playback options, Introduction to preferences for Animation or Animation Settings, play blast animation, Difference between Frame per second and render every frame.
- **Introduction to key settings:** Introduction to Key frame options, Introduction to Graph Editor, Dope Sheet Editor & Tracks Editor,
- **Human Walk Animation:** Introduction to Human Walk animation, Walk Cycle techniques, Animation keys, Play blast rendering, Blend shape, Props Animation. Learning the art of setting the in-betweens for the eye movement & head turns, Adjusting the timing and spacing of the head movements.

Practical/Submissions:

- 1.Walk Cycle
- 2.Blend shape



AMT260 Architecture Pre-Viz Lighting & Rendering

L T P
0 0 2

Objective: - The course aims to equip the students to understand the photometric lighting technique. The course includes 3Ds Max Design lighting and rendering techniques.

Course Contents:

- **Introduction to 3Ds Max Design Lighting:** - Autodesk 3ds Max Design Lighting Overview, Local vs. Global Illumination, Choosing a Lighting Strategy. Fundamentals of Standard Lighting, Types of Standard Lights, Shadow Types, Photometric Light Objects, Exposure Control, Daylight Lighting, Soft Shadows and Ambient Occlusion.
- **Lighting and Rendering using Mental ray:** - Scene Preparation for mental ray, Fundamentals of mental ray, rendering with mental ray, Mental ray Interior Rendering, Controlling mental ray Quality, Mental ray proxies.
- **Rendering Engines:** Iterative Rendering, Single vs. Double-sided, Camera Parameters, Background Images, The Print Size Wizard, Selected Rendering Options, and Rendering Presets.
- **IRay Basics:** Physically based lighting, working with materials, Interactive rendering, Light path expression.

Practical/Submission:

1. Interior Design
2. Exterior Design
3. Game Set Design
4. Studio Light



Objective: To impart knowledge about motion graphics and how to create them by using adobe after effects software. And also, student get to know about adobe after effects software.

Introduction to Motion graphics: Introduction to Motion graphics, Design Concepts, Showcase of Promos, Teasers, Typography and understanding workflow for creating motion graphics.

Introduction to Adobe After Effects: Understanding User Interface, Understanding Project, Footage, Composition, Timeline.

Animation: Basic Animation, Advanced Animation, Spatial Interpolation and Motion Paths.

Layers & Composition: Layers, trimming layers and Slip Editing, Blending Modes and Adjustment Layers, Pre-Composing, Frame Rate, Time Stretch and Time Remapping, Masking, Parenting and Nesting

Text & Transitions: Animator, Advanced Text Effect, Pick Whip Expressions, Wiggle Expressions, Transitions.

2.5D: Understanding 3D Space, animating in 3D Space, Lights, Camera, Using Effects and Stack order, Using Brainstorm, The Puppet.

Effects and Rendering: Chroma & keying, Rotoscopy, Color Correction fundamentals, Blur and Sharpen Effects, Using Effects and Presets, Channels and other effects, Fundamental of Rendering, Output formats, Codec, Compression.

Practical/Submission:

1. Mate painting
2. vector animation
3. Motion graphics video

AMT264 3D Dynamics

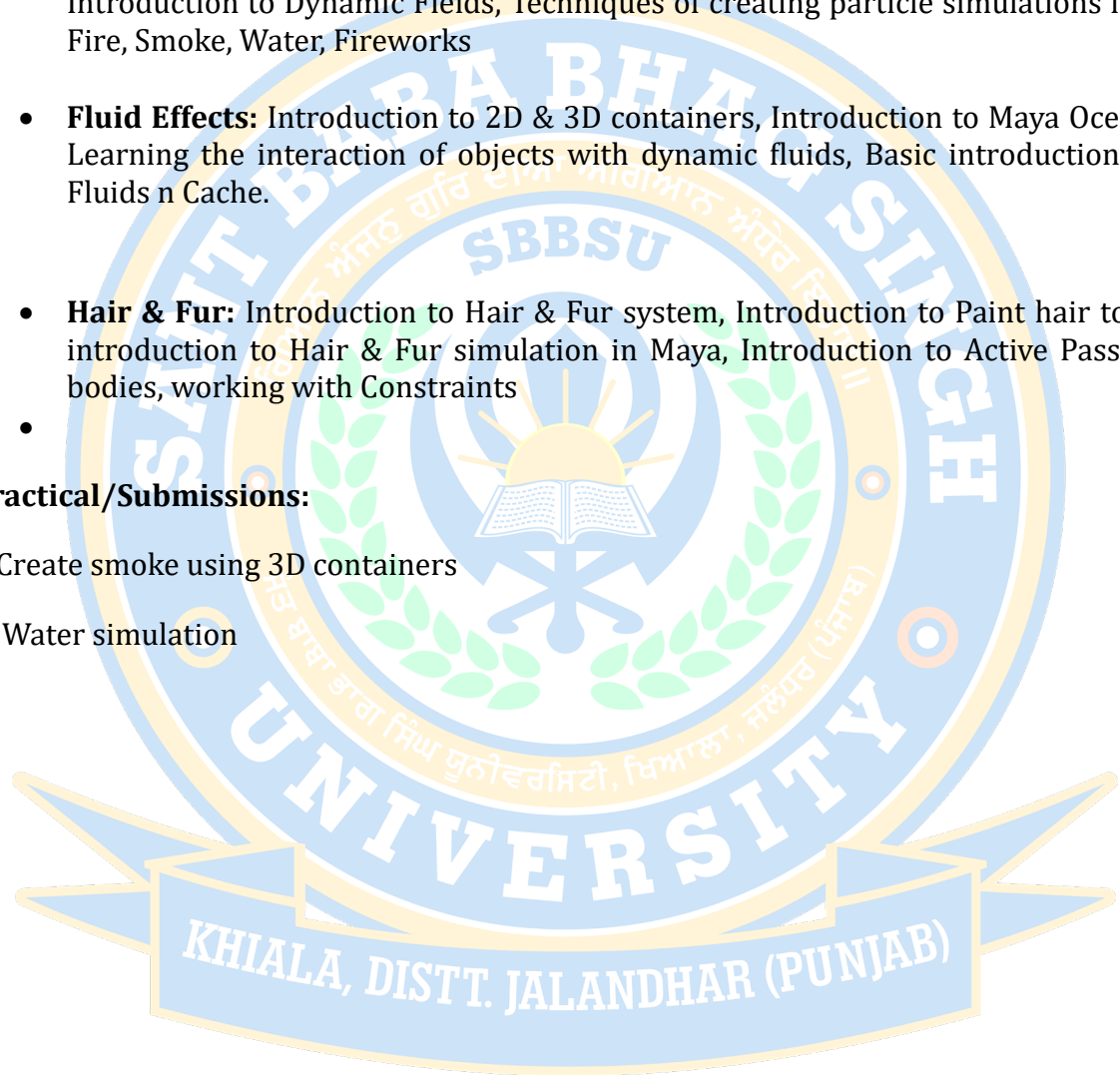
L T P
0 0 2

Objective: The course includes Fluid Effects and create a wide variety of 2D and 3D atmospheric, pyrotechnic, space, and liquid effects and creating Hair using Hair and Fur

- **Introduction to Dynamics and Particles:** Understanding Concepts of Dynamics, uses of dynamics in production pipeline, Introduction to particle system, Introduction to Dynamic Fields, Techniques of creating particle simulations like Fire, Smoke, Water, Fireworks
- **Fluid Effects:** Introduction to 2D & 3D containers, Introduction to Maya Ocean, Learning the interaction of objects with dynamic fluids, Basic introduction to Fluids n Cache.
- **Hair & Fur:** Introduction to Hair & Fur system, Introduction to Paint hair tool, introduction to Hair & Fur simulation in Maya, Introduction to Active Passive bodies, working with Constraints
-

Practical/Submissions:

1. Create smoke using 3D containers
2. Water simulation



Semester 5



Course Code	AMT351
Course Title	Fundamentals of Aesthetics
Type of Course	Major
L T P	4:0:0
Credits	4
Course Prerequisites	Knowledge of aesthetics
Course Objective	The main objective of the subject is to impart the knowledge about complete and theoretical studies of Aesthetics.
Course Outcomes (CO)	The student will able to: 1. Learn About complete and theoretical studies of Aesthetics. 2. Get knowledge of fundamental Elements of Applied Media Aesthetics 3. Get knowledge of principle study of Rasa 4. Get knowledge of principle study of Behaves

SYLLABUS

UNIT I:

Defining Aesthetics: What is Aesthetics, Aesthetic Experience, Plato, Aristotle.

History of Indian Aesthetics: Five Schools, Bharatmuni, Natyashashtra

UNIT II:

Nine types of Rasas: The principal study of Rasa like: Love, Joy, Wonder, Peace, Anger, courage, Fear, Sadness, Disgust.

UNIT III:

Six types of Bhavas: The principal study of Bhavas like: Unruffled feeling, Comrade feeling, Servent-Master attitude, Mother Child feeling, Loved-Beloved feeling, Oneness with God.

UNIT IV:

Applied Media Aesthetics: What is Applied Media Aesthetics, Fundamental Elements of Applied Media Aesthetics, difference between Applied Media Aesthetics and Traditional Aesthetics.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Indigenous Aesthetics: Native Art, Media, and Identity by Steven Leuthold	University of Texas Press	University of Texas Press.
2.	Art Beauty and Creativity: Indian and Western Aesthetics	Shyamala Gupta	D K Print World.

Course Code	AMT353
Course Title	Media Theory
Type of Course	Major
L T P	3:0:0
Credits	3
Course Prerequisites	Knowledge of Film and TV,
Course objectives	The main objective of the subject is to impart the knowledge about Media and various Media Theories.
Course Outcome (CO)	The student will able to: 1. Learn about Publicity Designing, 2. Understand Promotion of Projects/Products which plays an important role in the success of the Project. 3. Learn about the Film Criticism /developing reviews.

SYLLABUS

UNIT I:

General Introduction: Film and TV, Theory of Production & Consumption of Media Content, Theories of Spectatorship.

UNIT II:

Feminism and Film Theory, Reception Theory, Film Genres.

UNIT III:

Advertisements, Film Criticism, Film Theory.

UNIT IV:

Video: - Media and Cultural Theory, everyday uses of Video, Video Art and Digital Video Transformation of Consumer to User

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Movies & Methods: Vol. 1 & 2	Bill Nichols, Publisher-	University of California Press
2.	Modern Criticism and Theory	David Lodge,	Longman
3.	Concepts in Film Theory	Dudley Andrew	Oxford University Press.

AMT355 Minor Project-I

LTP
004

Objective: The main objective of the subject is to make a short animation film by students as their Individual Show reel.

The student is required to make a Show reel Project of minimum 2 Minutes. The student can choose the technology according to their specialization.



The logo of Khanna Baba Bhag Singh University is a circular emblem. The outer ring contains the university's name in English: "KHANNA BABA BHAG SINGH UNIVERSITY". Inside this, there is a smaller circle with text in Gurmukhi script. The center of the emblem features a stylized blue and white symbol, possibly representing a book or a flame, surrounded by green laurel leaves. Below the circular emblem is a blue ribbon banner with white text.

CG Asset Development (Elective-I)

KHIALA, DISTT. JALANDHAR (PUNJAB)

AMT357 Hard Surface Modeling

L T P
0 0 2

Objective: The course includes to impart the practical knowledge of creating hard surfaces. To learn about how to create realistic 3D assets

- **Creating Concept:** Working out rough designs on paper, finishing base shape, Crease line, Defining, Sharpening, Cutting, Refining.
- **Modeling Hard Surfaces with NURBS:** Project Overview, Preparing the scene, blocking in the Body, Detailing the body, Finishing.
- **Product Visualization:** Creating Initial Geometry, converting to polygon/nurbs, closing geometry, Cleaning and redirecting, Trimming, Using Fillets, adding and separating various sections.
- **Understanding of Automotive Modeling:** Drawing and setting up of references, Extruding, Bridging, Separating, Detailing, Finishing and polishing.
- **Adding details with Hard Surface Sculpting:** Sculpting the primary forms, Retopology to create the panels, Creating thickness for the panels, Creating insert brushes for added details.

Practical/Submission:

1. Creating an Automobile Model.
2. Modeling a Sci-Fi Weapon.



AMT359 Texturing & Shading for Production

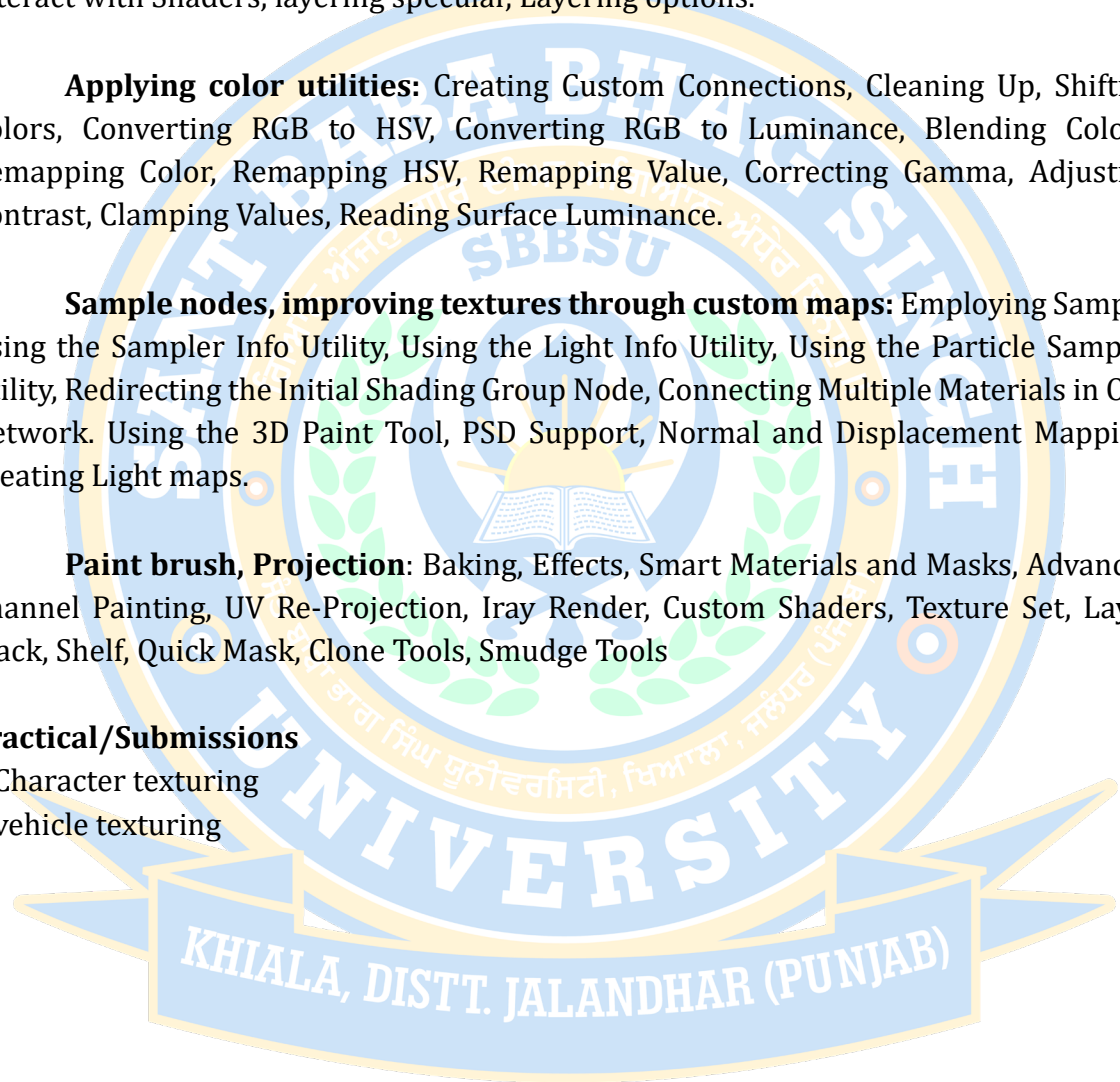
L T P
0 0 2

Objective: The course includes difference between Shaders, Textures and Materials and able to make realistic textures that behaves similar to real world environment

- **Utilizing shading techniques:** Shader components, Using DMC Sampling to interact with Shaders, layering specular, Layering options.
- **Applying color utilities:** Creating Custom Connections, Cleaning Up, Shifting Colors, Converting RGB to HSV, Converting RGB to Luminance, Blending Colors, Remapping Color, Remapping HSV, Remapping Value, Correcting Gamma, Adjusting Contrast, Clamping Values, Reading Surface Luminance.
- **Sample nodes, improving textures through custom maps:** Employing Sample, Using the Sampler Info Utility, Using the Light Info Utility, Using the Particle Sampler Utility, Redirecting the Initial Shading Group Node, Connecting Multiple Materials in One Network. Using the 3D Paint Tool, PSD Support, Normal and Displacement Mapping, Creating Light maps.
- **Paint brush, Projection:** Baking, Effects, Smart Materials and Masks, Advanced Channel Painting, UV Re-Projection, Iray Render, Custom Shaders, Texture Set, Layer Stack, Shelf, Quick Mask, Clone Tools, Smudge Tools

Practical/Submissions

- 1.Character texturing
- 2.vehicle texturing



Objective: The course aims to equip the students to model and texture a 3D asset and integrate it into a photographic plate. The course includes the understanding and workflow of 3D Modeling and Architectural Modeling.

- **Introduction to 3DS Max:** Understanding User Interface, Standard Primitives, Extended Primitives, Customizing the Units, Basic Models using Parametric Deformers, AEC Extended objects, Advanced Set Modeling-Buildings, Foliage-Exterior- Landscaping, 3D Boolean, Compound Objects, 2D Boolean.
- **Modeling Techniques in 3Ds max:** Understanding the Modifier Stack, Modeling with polygons and subdivision surfaces, Freeform sculpting, Modeling with Splines and NURBS, Linking objects in hierarchies.
- **Architectural Modeling:** Understanding the workflow of Architecture models, Interior Modeling, Exterior Modeling, Techniques used in Architectural modeling.
- **Texturing and shading in 3Dsmax:** Introduction to Texturing & Shading, building materials, Texturing with bitmaps and procedurals, Painting objects with Viewport Canvas, rendering a sequence, Adding special effects with mental ray.

Practical/Submissions

- 1.Character texturing
- 2.vehicle texturing



Objective:

- To impart knowledge about the digital sculpting techniques using Z-brush.
- To learn practical approach of Z-Modeler.
- To gain practical knowledge of using Dynamesh.
- **Introduction to zbrush:** Introduction to user Interface, Customizing ZBrush interface, Understanding Edit mode, Different 3D primitives, Edge Control
- **3D brush basics:** Brush adjustments, Strokes, alpha, Masking
- **Working with shadow box:** Entering Shadow Box Mode, Modify, Resolution, using references in working plane
- **Introduction to dynamesh, usage of zmodeler:** Inserting additive and negative meshes, Intersecting Meshes, adding shell, Actions and Targets, Edge Selector Widget, Working with Polygroups, Replay the Action, Masking, Actions, Targets

Practical/Submissions

monster Sculpting

character Sculpting





AMT365 Tracking and Match Moving

L T P
0 0 2

Objective: The course aims to equip the students with knowledge of Tracking Techniques and Camera Extraction. The course includes 2d & 3d tracking, exporting data for 3d and compositing packages.

Methods of extracting/reproducing camera motion: Understanding Motion Control Rig, Understanding Match animation and Match moving, Footage Preprocessing: Understanding Stabilization, Understanding Distortion, Understanding Shutter fix

Tracking: Using Geometry, 2d Tracking, 3d Tracking, OBJ and FBX to track an object camera, Nonconventional tracking, tracking non rigid objects and deformations, Camera and object Solution: Calibrating multiple cameras with and without motions and important steps for object tracking and mocap tracking.

Introduction to Pf Track: Pf track User Interface, Understanding Camera properties (Fallback, Focal Length, Resolution), Import/Export tracking data, Merge/Split tracks, Hide, Remove, Disable, Tracking Multiple Footage, Auto track, User track, Geometry tracking.

Exporting Solution: Exporting data for 3d Packages, Exporting data for Compositing Packages.

Integration: Importing data into compositing software, Compositing live action and CG.

Practical/Submissions

1. Video included with 3d objects
2. live action video included with graphics

Objective: To be able to do multi pass compositing using Adobe after effect. To be able to keying using Adobe after effect.

Introduction to After Effects: Setting up a project, creating a project, importing footage Item, opening & closing a project, saving a project

Importing media: File formats supported for import in After Effects, preparing still image file for import into After Effects, using interpretation rules, importing image containing alpha channel, importing layered adobe Photoshop files, importing layered Adobe illustrator files

Understanding key frame, setting key frames, Moving & copying key frames, Setting & animating a layer property in timeline window, Setting & animating anchor point, Setting & animating mask property, modifying mask, putting mask in motion, Using mask with effects

Tracking and Keying: Understanding different types of tracking techniques, Understanding Warp and Transform, Understanding Matte (Alpha Divide, Alpha Multiply, Chroma Keyer, Difference Keyer, Luma Keyer, Matte Control, Ultra keyer .

Compositing CGI: Compositing the real-life shoot with CG (Computer Generated) characters or Environment. Blending of CG (Computer Generated) lights Cameras with real shoot.

Particles: Introduction to Particles, Understanding its usage.

Practical/Submission:

1. Live Action Composite Shot.
- 2 3d tracking video minimum 1 minute.

Objective: This course introduces the student to advanced tools and compositing techniques. And students get to know about the advance term of VFX.

Cameras: Types of Cameras, Handling the Camera, understanding different kinds of camera and exposures, Understanding different kinds of films, Camera- Parts & Lenses

Function- Aperture, Shutter Speed, Film, ISO, Experiment with different light & angles, Composition & layout, Table Top Photography

Camera Angles: What are camera angles, how its help in film making.

Brainstroming: Idea or Concept for shoot.

Croma key: Basics of chroma keying, what is Blue/Green Screen Imaging., Why Blue/Green color be used, Lighting Chroma Key Properly, Green screen, blue screen removal.

Wire removal.

Introduction to Visual effects, Difference between visual effects and special effects, Chroma key compositing - Principles of chroma key compositing, Pulling the matte using keyer. Despill operation to avoid spill contamination (hue operation), Garbage mattes to support keying, Colour correction and composite the foreground and background, Chroma shoot, Materials used for chroma screen, Lighting techniques for chroma shoot, Shooting the chroma. Advantages of video cameras with little compression (4:2:2,4:4:4) for chroma shoots, motion tracking in chroma screen for camera movements.

Practical/Submission:

- 1 Shoot Short video with angles on croma key
- 2 Shoot Product video with angles on croma key

Objective: To understand UV map texturing techniques. To learn about the shading network and hyper shade. To gain practical knowledge of Render engine.

Texturing & Shading: Introduction to texturing and shading, working with Shader - Blinn, Phong and Lambert etc. Working with Shader Properties - Ambient, Diffuse, Specular, Shininess etc. 2D & 3D Procedural Maps.

UV Mapping: Understanding UVW Map, Unwrapping Complex Meshes, Working with Maps Bump and Opacity, Reflection & Refraction.

Concepts of Lighting: Introduction to lighting, understanding different types of Lights, 3 Point Light Setup, Working with Advanced Properties, Volume Lights.

Camera: Camera set up, Camera types, framing objects, Motion blur, Depth of field, using a stereoscopic camera.

Process of Rendering: Understanding the Rendering Basics, Introduction to Mental Ray, Mental Ray Setup, Global Illumination and Final Gather, Introduction to Caustics.

Practical/Submissions:

1. Exterior lighting/ Interior lighting (Day/Night).
2. Character lighting.

Animation ***(Elective-III)***



Objective: - To learn the basic principles of body mechanics- timing, spacing and scaling. To make student understand difference between cartoon & realistic animation. To create realistic animation of 3D objects & character.

- **Acquiring Reference data:** Recording video or acquiring data from live performance as a reference to create a good animation shot & give a little extra realistic motion that makes it come alive.
- **Line of Action:** Creating Line of action using sketch, giving your poses an even flow increasing readability & making them easier for viewer to look at.
- **Opposing actions, breaking of Joints:** Understanding two or more motions that are going in different directions. Learning how joint breaking adds a lot of motion to the Animation.
- **Walk Cycles:** Human walk cycle animation, Arcs, Timing of motion, understanding center of mass and which foot is carrying most of the weight

Practical/Submission:

1. Recording data for required live action performances
2. Learn to give extra realistic motion to the characters
3. Create line of action by sketching
4. Give characters poses, gestures and expressions to look like real
5. Adding and breaking a joint in the motion animation
6. Human walk cycle
7. Centre of mass and weight

Objective: - To impart knowledge about different types of rigging setup used in production. To provide practical knowledge about bones and muscle system. To be able to create rigged characters, that can be further animated in any 3D environment.

- **Character Setup:** Learning to use character setup controls & creating Human IK structure in Maya, Understanding the role of control rigs, Effectors & pivots.
- **Rigging Arms & Legs:** Ik/Fk leg setup, Reverse foot rig, Foot bending controls, Stretchy system for IK legs arms & hand setup, Finger joints, Bend controls for arms.
- **Skinning:** Learning direct & indirect skinning methods, editing node behavior to improve performance, understanding bind pose, smooth skinning & rigid skinning, Painting skin weight, using skin weight tool.
- **Constraints, Vehicle Rigging:** Using different types of constraints, Blending Animation & constraints, modify constraint axes, Using pole vector constraints & geometry constraints. Understanding car movements, using constraints for wheels & steering wheel, Driver & driven setup controls for movable body panels, manual body reaction to acceleration, Suspension system setup, Manual rear wheel spinning system for burn-out animations and sliding.

Practical/Submission:

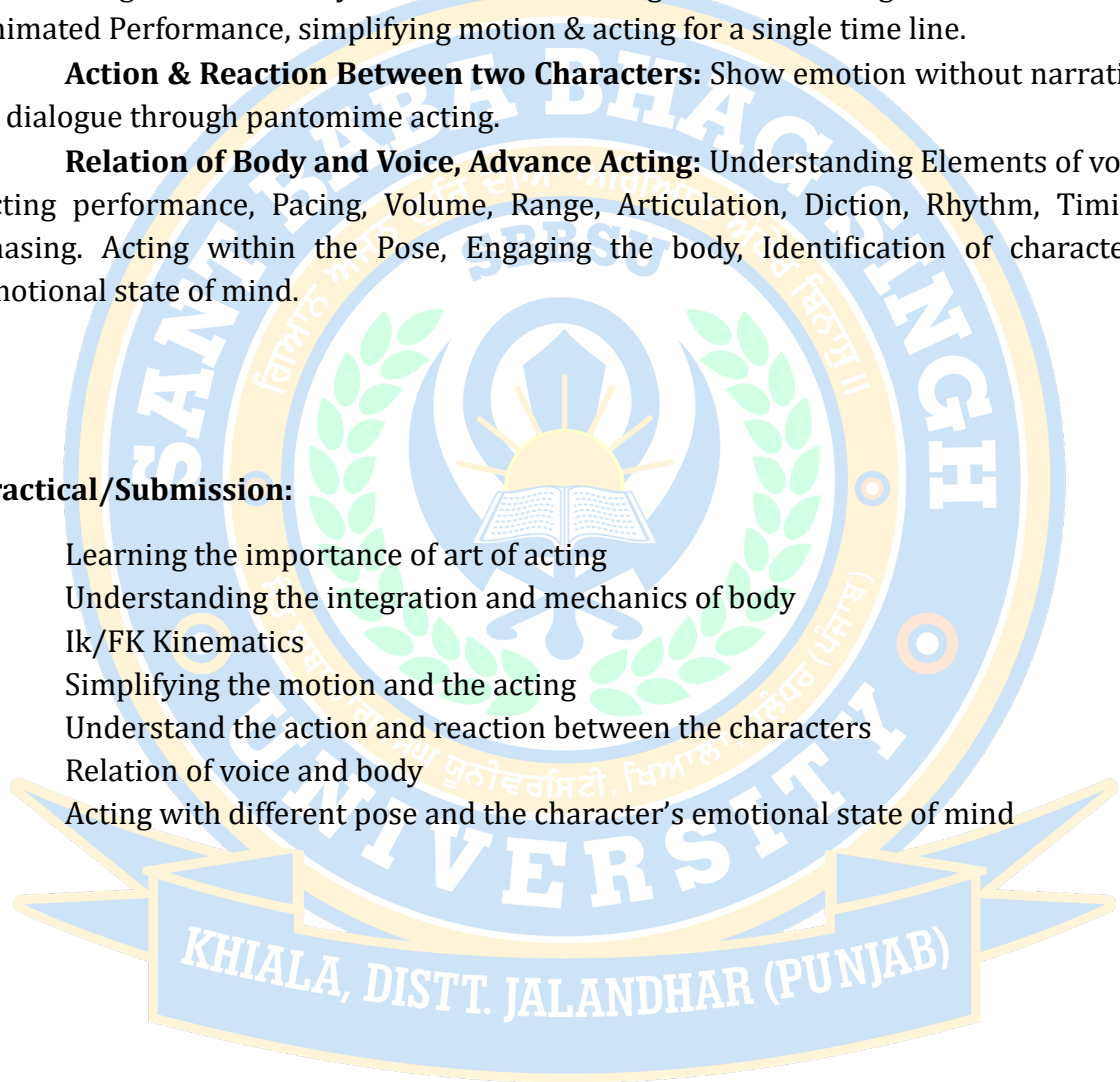
1. Human skeleton setup.
2. Jump & walk animation
3. Introduction to walk cycle by creating IK/FK (kinematics) structures
4. Working with the key frame options, graph editor and tracks editor.
5. Introduction to skeleton, joints and joints chain
6. Introduction to bind the skin and understand the types of skin
7. Introductions to deforms and also understand their types and uses.

Objective: - To make student understand the purpose of timing & emotion. To learn how to generate reference footage for animation. To be able to understand integration of acting with animation.

- **Introduction to Acting:** Learning the importance of Acting for Animation.
- **Integration of Body Mechanics & Acting:** Understanding elements of well Animated Performance, simplifying motion & acting for a single time line.
- **Action & Reaction Between two Characters:** Show emotion without narration or dialogue through pantomime acting.
- **Relation of Body and Voice, Advance Acting:** Understanding Elements of voice Acting performance, Pacing, Volume, Range, Articulation, Diction, Rhythm, Timing, Phasing. Acting within the Pose, Engaging the body, Identification of character's emotional state of mind.

Practical/Submission:

1. Learning the importance of art of acting
2. Understanding the integration and mechanics of body
3. Ik/FK Kinematics
4. Simplifying the motion and the acting
5. Understand the action and reaction between the characters
6. Relation of voice and body
7. Acting with different pose and the character's emotional state of mind



Objective: - To learn the process of making stripped down version of your film. To learn the process of creating 3D animatic. To be able to create a layout of narrative or creative concept.

- **Story Boarding:** Learning Tools & Methods for story board creation, applying effective boarding strategies to create good story boards.
- **Conveying the mood:** Scene tone (comedic, dramatic or action based) to the audience Blocking: creating key poses and establishing timing and placement of characters and props in a given scene or shot.
- **Animatic:** Developing preliminary version of a film using successive sections of a story board & adding a sound track & dialogue.
- **Editing:** Learning to edit the segments of Animatic to create a Pre-visualization, rearranging shot & sequences.

Practical/Submission:

1. Design of cartoon character with different poses.
2. Create a storyboard for a short-animated movie.
3. Study about color and color notations
4. Indoor and outdoor sketching
5. Creating scenes, storyboarding for required sequence
6. Model sheets include character sheets, character study, looks, gestures and portions.
7. Character's proportions like weight balance and stick figures



Semester 6

Course Code	AM352
Course Title	Publicity Designing & Media Laws
Type of Course	CC
L T P	3:0:0
Credits	3
Course Prerequisites	Knowledge of English Language
Course objective	The main objective of the subject is to impart the knowledge about Publicity Designing, promotion of Projects/Products which plays an important role in the success of the Project.
Course Outcome (CO)	The student is able to: 1. Get knowledge about Publicity Designing, 2. Promotion of Projects/Products which plays an important role in the success of the Project. 3. Get knowledge about the Film Criticism /developing reviews. 4. Get knowledge about the Film Criticism /developing reviews.

SYLLABUS

UNIT 1:

Print Media - Newspapers, Magazines, Brochures, Posters, Leaflets, Pamphlets, Dangers, posters etc.

Outdoor Advertising - Hoardings, Cutouts, Bus Panels, Posters.

UNIT II:

Electronic Media - Audio (Radio, FM), Audio-Visual (Television), Internet- Websites, Online advertising, Blogs, Banners, Emails.

UNIT III:

Cinema, Exhibitions, Trade Fairs.

UNIT IV:

Indian print Media in the context of Globalization, Copyright Act - Recent Indian Laws, Contempt of Court- Civil and Criminal Contempt, Defamation.

Course Code	AM354
Course Title	Special Effects in Film Feature
Type of Course	CC
L T P	3:0:0
Credits	3
Course Prerequisites	Knowledge of Film Making
Course objective	The main objective of the subject is to impart the knowledge about Publicity Designing, promotion of Projects/Products which plays an important role in the success of the Project. The other part of the subject is to impart knowledge about the Film Criticism /developing reviews.
Course Outcome (CO)	The student will able to: 1. Get knowledge about Publicity Designing, promotion of Projects/Products which plays an important role in the success of the Project. 2. Get knowledge about the Film Criticism /developing reviews. 3. Learn about Matte Creation and Manipulation 4. Understand Nodes and the Node Graphs

SYLLABUS

UNIT 1:

Introduction to Digital Compositing, Historical Perspective, Terminology. The Digital Representation of Visual Information. Image Generation, Image Input Devices, Digital Image File Formats, Basic Image Manipulation, Colour Manipulations, Geometric Transformation. Basics of Compositing, the Matte Image, Multisource Operators, Masks, Compositing with Pre-multiplied Images.

UNIT II:

Matte Creation and Manipulation, Procedural Matte Extraction, Matting Techniques, Image Tracking and Stabilization, Tracking and Element Into a Plate, Manual Manipulation of Tracking curves, Stabilizing a Plate, Tracking Multiple Points, Interface Interaction, The Nuke Window.

UNIT III:

Understanding Nodes and the Node Graphs, the Properties Panel, Other Controls On All Properties Panels. Indicators on Nodes, Viewer Nodes and Viewer Pane, Timeline Controls, Key frame Indication, The Curve Editor Pane, Displaying a Channel Set.

UNIT IV:

Display Gain and Gamma, Viewer Composite Display Modes 26, Region of Interest (ROI), Customizing Your Layout Image Viewing and Analysis.

AM356 Major Project

Objectives: The main objective of the subject is to make a short animation film by students as their Project Show reel so that the student can be easily assimilated in the industry. The students can choose the area of Specialization keeping in view their interest.

- Project (As per Student's Chosen Stream in 5th Semester)

Note: The students shall work partly in the college and partly in the concerned Industry.



CG Asset Development (Elective-I)



AMT358 Character Modeling & Sculpting

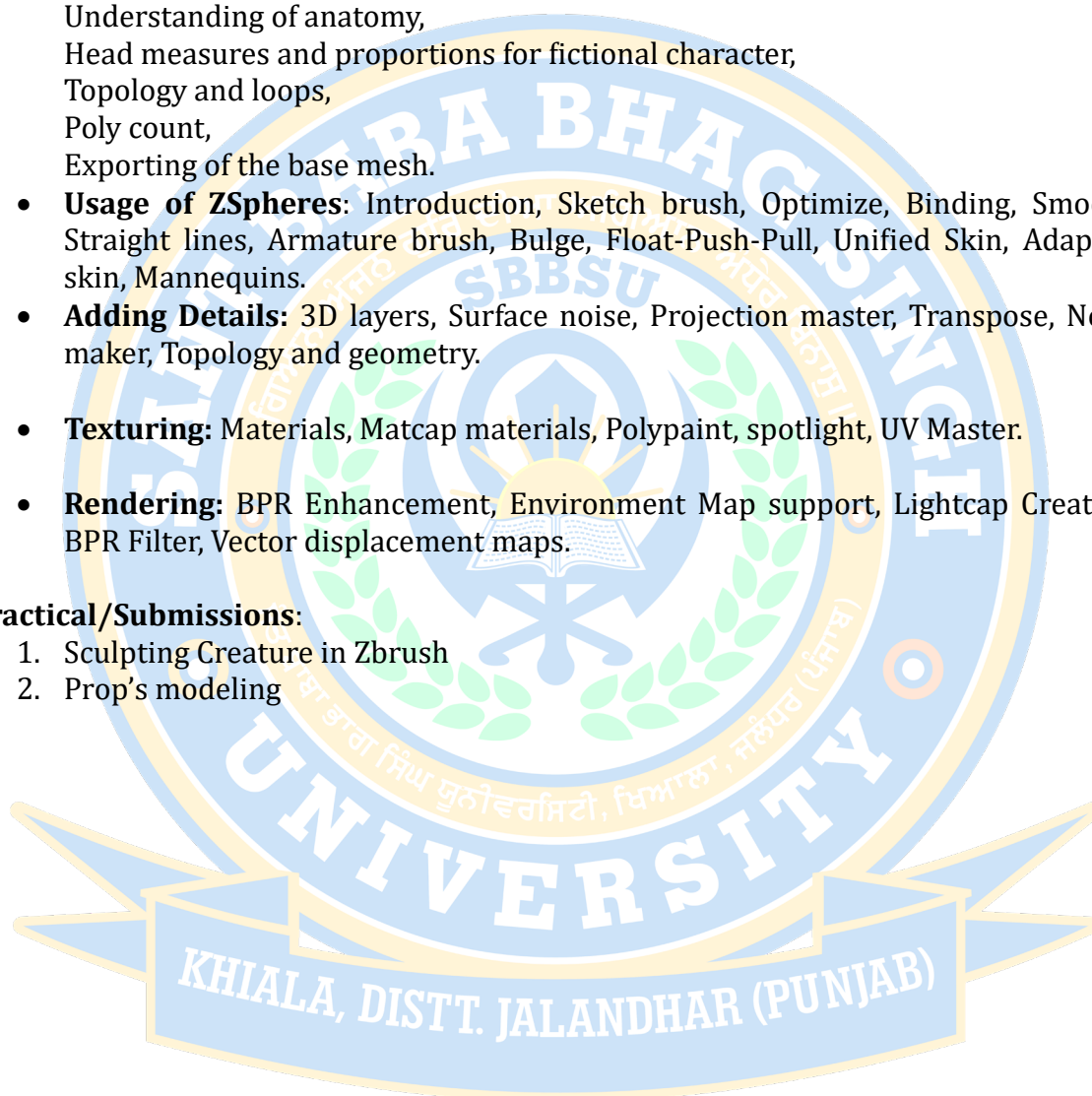
L T P
0 0 2

Objective: The course includes to understand the production pipeline of Character Modeling. To learn practical understanding of Sculpt-mesh

- **Building a Sculpt Mesh in Maya:** Using references for concept creation, Understanding of anatomy, Head measures and proportions for fictional character, Topology and loops, Poly count, Exporting of the base mesh.
- **Usage of ZSpheres:** Introduction, Sketch brush, Optimize, Binding, Smooth, Straight lines, Armature brush, Bulge, Float-Push-Pull, Unified Skin, Adaptive skin, Mannequins.
- **Adding Details:** 3D layers, Surface noise, Projection master, Transpose, Noise maker, Topology and geometry.
- **Texturing:** Materials, Matcap materials, Polypaint, spotlight, UV Master.
- **Rendering:** BPR Enhancement, Environment Map support, Lightcap Creation, BPR Filter, Vector displacement maps.

Practical/Submissions:

1. Sculpting Creature in Zbrush
2. Prop's modeling



AMT360 Lighting & Rendering for Production

L T P

Objective: The course includes to learn production lighting techniques. impart the practical knowledge of production lighting techniques using mental ray

- **Light Linking Modes:** Determine a light's area of illumination, Link light sources to surfaces, Link sets of lights and objects, select objects illuminated by a specific light, select lights illuminating a specific object.
- **Utilizing Viewport 2.0:** Benefits and limitations, lighting scene, improving playback performance, fixing transparency errors, Rendering with Maya hardware.
- **Mental Ray Workflows:** Controlling the physical sun and sky lighting systems, Using Final Gather, creating a motion blur effect, understanding photons (GI), Using (GI) photons, combined, Depth, setting up for caustics, Creating the caustic effect, Saving and reusing indirect illumination map files, Altering objects irradiance values, Density and Distribution.
- **Camera Fundamentals:** Aspect ratio, Camera lenses, Motion blur, Depth of field.
- **Render Passes:** Layers, Passes, Creating and associating render passes, Light centric contribution maps, advanced render pass attributes.

Practical/Submissions

1. IBL lighting
2. Exterior lighting Using Final Gather

Objective: To learn production lighting techniques using mental ray. To impart the practical knowledge of production lighting techniques using v-ray. To learn production rendering techniques using mental ray and v-ray for architectural visualization

- **Mental ray:** Understanding of Final gathering, Accuracy, Point density, Interpolation, Diffuse scale, Diffuse bounce, Final Gathering map, Final gathering quality, Tracing, Using Global Illumination & Caustics, Understanding Photons, Photons emission and photon energy properties, Color attributes, Accuracy, Photon Tracing, Working with direct and indirect lighting, Caustic photons, Controlling caustic emission, Energy properties, Direct illumination, Using ray tracing attributes, Caustic patterns, Caustic photon map.
- **Camera parameters:** Environment range group, Match camera to view, Camera path animation.
- **Creating high resolution studio renders, linear workflow rendering strategies:** Real time lighting workflow, HDR light studio, HDRI, Finalizing the scene, back burner. Understanding linear workflow, Gamma-correcting textures, Rendering and compositing.

Practical/Submissions

1. Mental ray interior and exterior renders
2. Camera parameters, background images
3. Design lighting in 3ds max such as local and global illuminations.
4. Lighting and working with materials



AMT364 Art of Compositing

LTP
002

Objective: - To be able to do Roto and Paint. To be able to do multi pass compositing using Adobe after effect. To be able to keying using Adobe after effect.

- **Introduction to Roto and Paint:** Introduction to Rotoscopy, Introduction to Paint, Principles of Rotoscopy, Importance of Rotoscopy and Paint in Visual Effects Production Pipeline.
- **Rotoscopy Techniques:** Drawing Complex Shapes, Point Consistency control, Beauty Retouch, Working with Motion Blur.
- **Tracking:** Understanding Planer Tracker, Understanding Point Tracker, Other tracking techniques.
- **Paint:** Introduction to Paint, Understanding Brushes, Understanding Motion tracking, Wire removal techniques.
- **Rendering:** Understanding Files and Formats, understanding preview and Select Render.

Practical/Submission:

1. 10 Sec Roto Shot.
2. Wire Removal Shot



AMT366 Fluid Fx Simulation

**L T P
0 0 2**

Objective: - To be able to do Rigid body Simulation using Realflow in FX pipeline. To be able to do water Simulating using Realflow in FX pipeline. To be able to export data into other 3D softwares

- **Introduction to RealFlow:** Introduction to User Interface, Understanding RealFlow Project management, working with RealFlow particle emitters.
- **Particles:** Understanding Particles (Gas, Liquid, Dumb, Elastics, Scripted), Understanding Objectparticle Interaction parameters, Understanding Containers.
- **Deamons:** Introduction to Deamons, Understanding K Volume, K Age, K Speed, K Isolated, K collision, K Sphere, Gravity, Attractor, D Spline, Wind, Vortex etc.
- **Rendering:** Rendering Meshes, rendering particles, Rendering Wet maps, Rendering Mesh Attributes.

Practical/Submission:

1. Water Splashing from glass shot.



AMT368 Dynamics for Effect Animation

**LTP
002**

Objective: - To be able to use particle flow for Fx pipeline. To be able to use After burn for Fx pipeline. To be able to use Fume Fx for Fx pipeline.

- **Non-Event- Driven Particle Systems:** Introduction to Non-Event-Driven particle system, Spray particle System, Snow particle System, Super Spray particle System, Blizzard Particle System, PCloud Particle system.
- **Understanding Forces:** Push Space Warp, Motor Space Warp, Vortex Space Warp, Drag Space Warp, pbomb Space Warp, Path Follow space Warp, Gravity Space Warp, Wind Space Warp, Displace Space Warp.
- **Deflectors:** PomniFlect Space Warp, SomniFlect Space Warp, UomniFlect Space Warp, SDeflector Space Warp, Deflector Space Warp.
- **Particle Flow:** Understanding particle flow User interface, understanding operators, understanding flows, Understanding tests.
- **Geometric/Deformable:** FFD (Box) Space Warp, FFD (Cyl) Space Warp, Wave Space Warp, Ripple Space Warp, Conform Space Warp, Bomb Space Warp.
- **AfterBurn:** Introduction to Afterburn, UnderstandingWorkflow, Understanding Rendering, Understanding Shadows, Understanding Noise, Understanding Deamons.
- **FumeFX:** Introduction to FumeFX, Understanding Effectors, Understanding RenderWarps, Understanding N-Sim, Understanding Daemons, Rendering.

Practical/Submission:

1. Create Fireworks using Particle Flow.
2. Create Flamethrower Effect.



Animation

(Elective- III)



AMT370 Lip Sync and Facial Animation

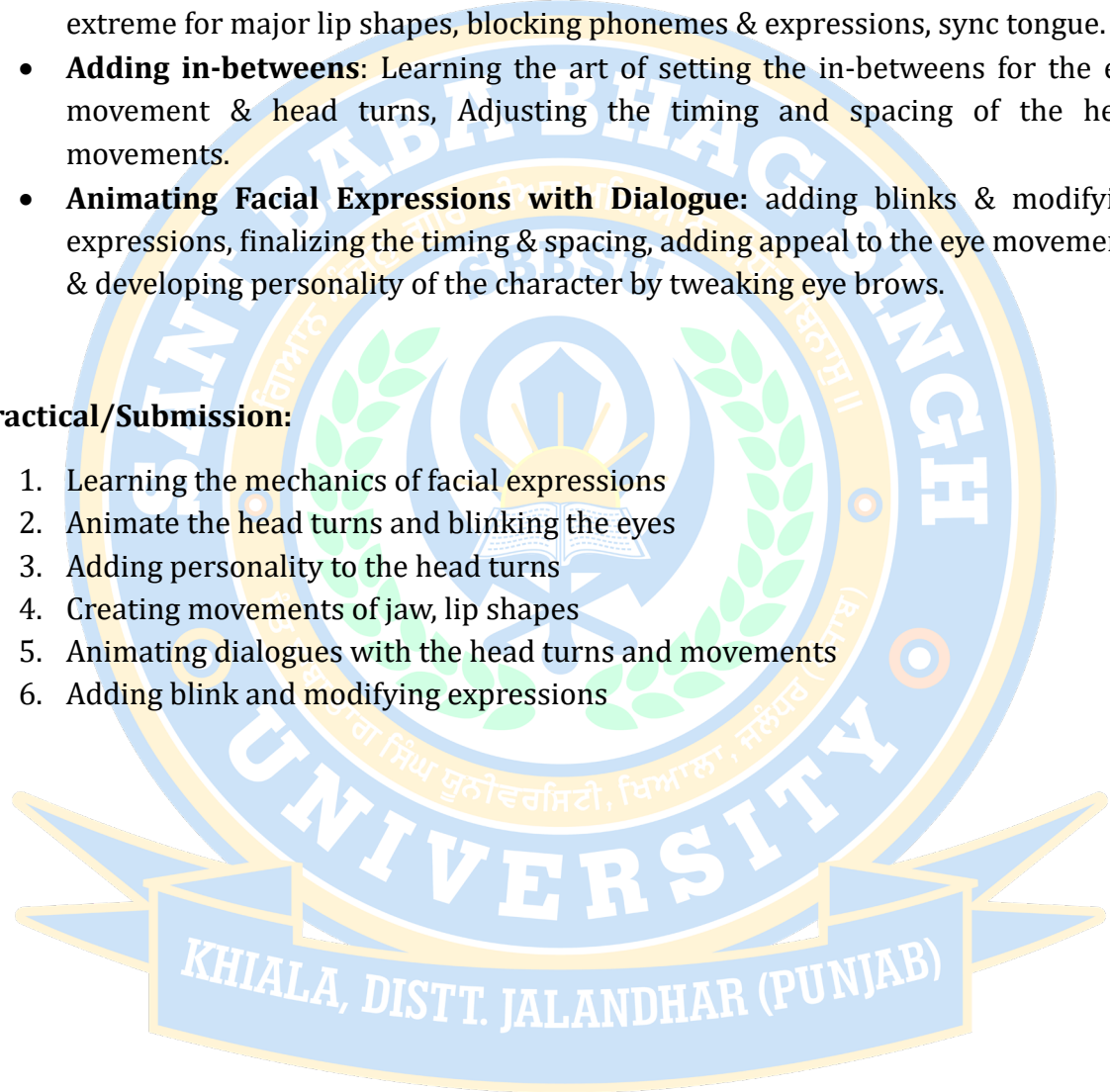
**LTP
002**

Objective: - To learn innovative & time saving facial animation & lip sync techniques. To learn the importance of timing in animation when creating dialogues. To make students learn the importance of audio sync in animation.

- **Mechanics of Facial Animation:** Learning to animate head turns blinks & eye movement, keying the arcs & animating the head bops, adding personality to the head turns.
- **Character Lip Syncing:** Creating horizontal movements of the jaw, keying the extreme for major lip shapes, blocking phonemes & expressions, sync tongue.
- **Adding in-betweens:** Learning the art of setting the in-betweens for the eye movement & head turns, Adjusting the timing and spacing of the head movements.
- **Animating Facial Expressions with Dialogue:** adding blinks & modifying expressions, finalizing the timing & spacing, adding appeal to the eye movements & developing personality of the character by tweaking eye brows.

Practical/Submission:

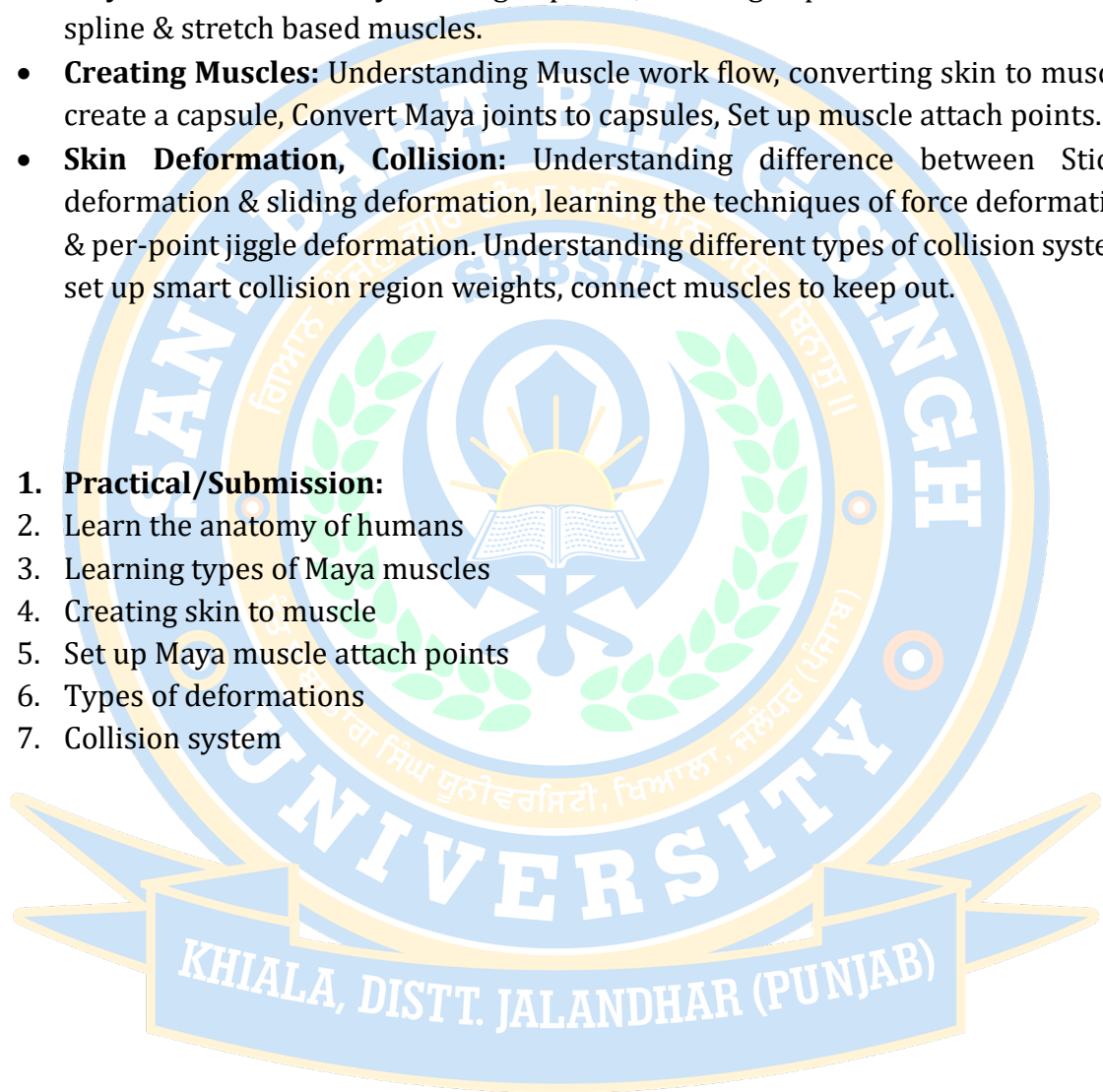
1. Learning the mechanics of facial expressions
2. Animate the head turns and blinking the eyes
3. Adding personality to the head turns
4. Creating movements of jaw, lip shapes
5. Animating dialogues with the head turns and movements
6. Adding blink and modifying expressions



Objective: - To learn the anatomy of humans & other creatures for understanding muscle system. To learn hierarchical naming system of creating muscle system. To impart practical knowledge about muscle system for creating realistic rigs in Maya.

- **Introduction to Maya Muscle:** Starting up with Maya Muscle system, Components of Maya muscle system, Accessing Maya muscle features from muscle menu, learning types of Muscles
- **Maya Muscle Anatomy:** Adding capsules, building capsules chains & creating spline & stretch based muscles.
- **Creating Muscles:** Understanding Muscle work flow, converting skin to muscle, create a capsule, Convert Maya joints to capsules, Set up muscle attach points.
- **Skin Deformation, Collision:** Understanding difference between Sticky deformation & sliding deformation, learning the techniques of force deformation & per-point jiggle deformation. Understanding different types of collision system, set up smart collision region weights, connect muscles to keep out.

1. **Practical/Submission:**
2. Learn the anatomy of humans
3. Learning types of Maya muscles
4. Creating skin to muscle
5. Set up Maya muscle attach points
6. Types of deformations
7. Collision system



Objective: - To learn creating efficient prop animation and merging it into animation shot. To create more organic and realistic motion for props. To learn the techniques of constraints and applying them onto the props further enhancing the appeal of character.

- **Constraints Using for Two-Handed Props:** Learning the techniques of two-handed prop interactions where one of the hands is leading the action & secondary hand will follow the prop.
- **Animating with Constraints for Props Leading Hands:** Linking props to hands, creating grouping system for hand controllers.
- **General Prop Setup:** Learning to create repeatable system for putting a prop into a character's hand and retain the ability to animate the prop independently, while still following the character's hand.
- **Constraint Switching:** Understanding the techniques of setting up multiple constraint systems and switching them on and off correctly.

Practical/Submission:

1. Creating efficient prop animation
2. Techniques of two-handed animation
3. Creating systems for hand controllers
4. General prop setup
5. Setting multiple constraint system
6. Realistic and organic motion for props.

