Engineering and Technology (4 Years)

"Bachelor of "Animation & VFX"

Objectives:

The Bachelor of Technology in Animation & VFX program at Guru Ghasidas University is designed to meet the growing demand for skilled professionals in the field of animation, visual effects, and multimedia. This program offers a comprehensive curriculum that combines theoretical knowledge with practical skills to prepare students for careers in animation studios, film production companies, advertising agencies, and gaming industries.

The New era emerging course gives creative students a fantastic opportunity to develop creative, innovative and required technical abilities and the capacity to locate individual design approaches in a professional framework. Over the past few years, the department has exhibited remarkable growth, producing trend designers, a greater number of artisans and animators. The course contains Drawing, Painting, Graphic Design, 2D and 3D Animation, Gaming, Filmmaking, VFX, Camera, and Photography in a very rigorous curriculum influenced by global art and design highlights. Each topic of study offers the opportunity to identify, plan, and attain learning goals through comprehending cultural, social, and technological advancements in the context of historical, present, and individual concerns. The curriculum has a universal appeal to both theoretical and practical components by strengthening both creative and innovative talents and critical thinking.

Learning Outcomes:

- **LO-1**: After completing graduation students will be equipped with creative and technical skills in various domains of Animation, Gaming, VFX and multimedia. This will enable them to be employed globally.
- **LO-2:** This Emerging era course offered to the students will enhance their knowledge in the field 3D Animation. Students will become an expert in the specific domain of 3d Animation and will work in Films, Games and other animation related fields.
- **LO-3:** This Course offered to the students will enhance their knowledge in the field of 2D Animation & Graphic Design. Students will achieve expertise in the specific domain of Graphics Design, 2D animation and will be able to work in Films, Graphic design Companies and other animation related fields.
- **LO-4:** This course offered to the students will enhance their knowledge in the field of VFX. This course mainly focuses on creative VFX for Films. Students will become experts in the specific domain of VFX and will be able to work in Films, Games and other animation related fields.
- **LO-5:** The program offered to the students will enhance their skill and knowledge in the field of Game development. It will enhance their skills in both Creative and Aesthetics of Games. Students will become experts in the specific domain of Computer Games and will be able to work in top computer games industries.

Skill based Objective:

- **SBO 1:** Communicate ideas, emotion and intent effectively in visual, oral and written forms.
- **SBO 2:** Succeed in life-long learning to remain accountable and thoughtful contributors to society.
- **SBO 3:** Gain real world project experience throughout their learning cycle, and become effective and efficient industry leaders with the quality of entrepreneurship.
- **SBO 4:** Able to demonstrate their acquired knowledge for the growth of social and ethical values in outdoor activities, such as service learning, internships and field work.
- **SBO 5:** Able to undertake a complex project to finish smoothly in a result-oriented manner both individually and as a team.
- **SBO 6:** Get expertise in the fields of Computer Graphics assets creation, Visual Effects, Gaming and Graphic Design.

Program Objectives:

1. To provide students with a strong foundation in the principles and techniques of animation and visual effects.
2. To develop students' creative and technical skills in 2D and 3D animation, visual effects, compositing, and digital storytelling.
3. To equip students with the knowledge and skills required to work with industry-standard software and tools used in animation and visual effects production.
4. To foster an understanding of the ethical and legal issues related to animation and visual effects production.
5. To prepare students for careers in animation studios, film production companies, advertising agencies, gaming industries, and other related fields.

Program Structure:

The Bachelor of Technology in Animation & VFX is a four-year undergraduate program consisting of eight semesters. The program includes a combination of theory courses, practical sessions, industry projects, and internships. The curriculum covers a wide range of topics, including:

1. Introduction to Animation & VFX
2. Principles of Animation
3. 2D Animation Techniques
4. 3D Animation Techniques
5. Visual Effects
6. Digital Compositing
7. Character Design & Development
8. Storyboarding & Scriptwriting
9. Multimedia Production
10. Motion Graphics
11. Gaming Technologies
12. Industry Internship

Admission Requirements:

To be eligible for admission to the Bachelor of Technology in Animation & VFX program, candidates must have completed their 10+2 education in the Science stream with a minimum aggregate of 50% marks. Additionally, candidates may be required to appear for an entrance examination and/or interview conducted by the university.

Career Opportunities:

The Bachelor of Technology in Animation & VFX opens up a wide range of job opportunities in the animation, visual effects, gaming, and multimedia industries. Here are some of the key job prospects for graduates of this course:

1. **Animator:** Animators create animation and special effects for films, TV shows, video games, and other forms of media. They use computer software to create 2D and 3D animations, characters, and backgrounds.
2. **VFX Artist:** Visual Effects (VFX) artists create computer-generated imagery (CGI) for films, TV shows, commercials, and video games. They use software to create realistic effects such as explosions, fire, water, and other visual elements.
3. **Graphic Designer:** Graphic designers create visual concepts, using computer software or by hand, to communicate ideas that inspire, inform, and captivate consumers. They develop the overall layout and production design for various applications such as advertisements, brochures, magazines, and corporate reports.
4. **Multimedia Artist:** Multimedia artists create special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in products or creations, such as computer games, movies, music videos, and commercials.
5. **Game Designer:** Game designers are responsible for creating the concept, story, characters, and gameplay of video games. They work closely with programmers, artists, and other designers to bring their vision to life.
6. **Film and Video Editor:** Film and video editors edit moving images on film, video, or other media. They work closely with directors to determine the overall vision of the production and are responsible for assembling the final edited product.
7. **Motion Graphics Designer:** Motion graphics designers create animated graphics and visual effects for film, TV, video games, and other media. They use animation and visual effects software to create engaging and visually stunning graphics.
8. **Visual Effects Supervisor:** Visual effects supervisors oversee the visual effects team and ensure that the visual effects in a production are of the highest quality. They work closely with directors and producers to achieve the desired visual effects.
9. **Art Director:** Art directors are responsible for the visual style and images in magazines, newspapers, product packaging, and movie and television productions. They create the overall design and direct others who develop artwork or layouts.
10. **Creative Director:** Creative directors are responsible for the creative vision of a project. They oversee the creative team and ensure that the final product meets the client's expectations and objectives.

Annual Fee Structure

Year	Odd Semester Fee (INR)	Even Semester Fee (INR)	Annual Total (INR)
1st Year	₹54,550	₹54,550	₹1,09,100
2nd Year	₹53,625	₹53,625	₹1,07,250
3rd Year	₹53,625	₹53,625	₹1,07,250
4th Year	₹54,275	₹54,275	₹1,08,550
Total Fee	-	-	₹4,32,150/-

📌 The first-semester fee includes a refundable caution money deposit.
📌 # Degree fee of ₹300/- is included in the 4th-year fee structure.
📌 # Alumni fee of ₹1,000/- is included in the 4th-year fee structure.

Semester-Wise Fee Structure

S. No.	Fee Component	1st Sem (INR)	2nd Sem (INR)	3rd Sem (INR)	4th Sem (INR)	5th Sem (INR)	6th Sem (INR)	7th Sem (INR)	8th Sem (INR)
1	Tuition Fee	₹51,000	₹51,000	₹51,000	₹51,000	₹51,000	₹51,000	₹51,000	₹51,000
2	Admission Fee (One-Time, 1st Sem Only)	₹600	—	—	—	—	—	—	—
3	Enrolment Fee (One-Time, 1st Sem Only)	₹200	—	—	—	—	—	—	—
4	Lab/Department Fee	₹1,000	₹1,000	₹1,000	₹1,000	₹1,000	₹1,000	₹1,000	₹1,000
5	Library Fee (Yearly)	₹300	—	₹300	—	₹300	—	₹300	—
6	Sports Fee	₹500	₹500	₹500	₹500	₹500	₹500	₹500	₹500
7	Institute Caution Money (Refundable, 1st Sem Only)	₹1,000	—	—	—	—	—	—	—
8	Examination Fee	₹400	₹400	₹400	₹400	₹400	₹400	₹400	₹400
9	Student Welfare Fund (Yearly)	₹100	—	₹100	—	₹100	—	₹100	—
10	Medical Fee (Yearly)	₹100	—	₹100	—	₹100	—	₹100	—
11	Magazine Fee (Yearly)	₹100	—	₹100	—	₹100	—	₹100	—
12	Co-curricular/School Fest Fee (Yearly)	₹100	—	₹100	—	₹100	—	₹100	—
13	Identity Card Fee (1st Year Only)	₹50	—	—	—	—	—	—	—
14	Tech Fest Fee (Yearly)	₹500	—	₹500	—	₹500	—	₹500	—
15	Degree Fee (One-Time, 4th Year Only)	—	—	—	—	—	—	₹300	—
16	Yoga Fee (Yearly)	₹250	—	₹250	—	₹250	—	₹250	—

17	Alumni Fee (One-Time, 4th Year Only)	—	—	—	—	—	—	₹1,000	—

Total Payable Per Semester

Semester	Amount (INR)
1st Semester	₹54,550 (including one-time fees)
2nd Semester	₹51,000
3rd Semester	₹53,625
4th Semester	₹51,000
5th Semester	₹53,625
6th Semester	₹51,000
7th Semester	₹54,275 (including degree & alumni fee)
8th Semester	₹51,000

Total Estimated Cost for Entire B.Tech. Program

Year	Annual Fee (INR)
1st Year	₹1,09,100
2nd Year	₹1,07,250
3rd Year	₹1,07,250
4th Year	₹1,08,550
Total Fee	₹4,32,150/-

B.Tech. in Animation, VFX & Immersive Computing

Program Focus:
Merges the creativity of digital design with a strong foundation in core computer science, enabling students to develop high-performance media systems, AR/VR applications, real-time rendering engines, and intelligent content creation tools.

Semester-Wise Practical & CS-Core Aligned Structure

Semester 1 – Computational Foundations (Credits: 22)

Code	Subject	Credits
CS101	Programming Fundamentals (C & Python)	3
CS102	Discrete Mathematics	3
CS103	Data Structures and Algorithms I	3
ANIM101	Design Fundamentals & Sketching	2
ANIM102	Introduction to Media Technology	3
CS101P	Lab: Programming with C & Python	4
ANIM102P	Lab: Visual Sketching & Cinematic Basics	4

Semester 2 – Object-Oriented and Visual Computing (Credits: 22)

Code	Subject	Credits
CS201	Object-Oriented Programming (C++/Java)	3
CS202	Data Structures and Algorithms II	3
CS203	Computer Architecture & Organization	3
ANIM201	Digital Image Processing	3
ANIM202	Storyboarding & Script Writing	2
CS201P	Lab: OOP and DS Implementation	4
ANIM202P	Lab: Image Editing & Concept Design	4

Semester 3 – Core Systems and Real-Time Graphics (Credits: 22)

Code	Subject	Credits
CS301	Operating Systems	3
CS302	Computer Graphics (with OpenGL/WebGL)	3
CS303	Database Management Systems	3
ANIM301	3D Modelling & Texturing (Blender/Maya)	3

CS303P	Lab: DBMS + SQL	3
ANIM301P	Lab: 3D Modelling Workshop	4
CS302P	Lab: OpenGL Graphics Implementation	3

Semester 4 – AI & Engine Programming (Credits: 22)

Code	Subject	Credits
CS401	Artificial Intelligence Fundamentals	3
CS402	Software Engineering & UML	3
CS403	Game Programming (Unity with C#)	3
ANIM401	Rigging and Animation	2
ANIM402	Game Environment & Asset Integration	2
CS401P	Lab: AI and Pathfinding for Games	4
ANIM402P	Lab: Unity Projects – Level Design	5

Semester 5 – AR/VR and Advanced VFX (Credits: 22)

Code	Subject	Credits
CS501	Augmented & Virtual Reality Systems	3
CS502	Real-Time Rendering Pipelines (Shaders, GLSL)	3
ANIM501	VFX using Houdini & After Effects	3
CS503	WebGL and Interactive Visualization	3
CS502P	Lab: Shader Programming & WebGL Projects	4
ANIM501P	Lab: Simulation, VFX & Compositing	4
ANIM502	Mini Project: Cinematics/Game Cutscenes	2

Semester 6 – Systems Integration and Emerging Tech (Credits: 22)

Code	Subject	Credits
CS601	IoT Systems for Media Interaction	3
CS602	Cloud & Edge Computing for XR Applications	3
CS603	Advanced Algorithms for Simulation & Physics	3
ANIM601	Gamification and Interactive Design	2
CS601P	Lab: IoT for Smart Media Devices	4

CS602P	Lab: Edge/Cloud Integration for VR Streaming	4
ANIM602P	Simulation Project (with Game/Media Context)	3

Semester 7 – Research, Analytics & Media Computing (Credits: 22)

Code	Subject	Credits
CS701	Computer Vision for VFX & Games	3
CS702	Data Science for Media Analytics	3
ANIM701	Immersive Media Case Studies (Film, XR, Games)	2
CS703	Blockchain & IP Security for Digital Assets	2
CS704	Entrepreneurship in Digital Media Tech	3
CS703P	Lab: Blockchain for Content Ownership	4
ANIM702P	Lab: Research Paper/Proof of Concept Prototype	5

Semester 8 – Capstone & Industry Integration (Credits: 24)

Code	Subject	Credits
CS801P	Final Year Project / Industry Internship	12
CS802P	Portfolio Development + Demo Reel	12

Course Highlights

- 🔧 **50%+ Practical Credits**: Emphasis on labs, projects, and real-world toolchains.
- 💻 **IT-Focused Core**: OS, DBMS, AI, Graphics, Algorithms, IoT, Cloud, and CV.
- 🎮 **Game & XR Integration**: Full-stack game development with Unity, UE5, and WebXR.
- 🎥 **Film-Quality VFX Training**: Houdini, Blender, Nuke, After Effects, Fusion.
- 🔐 **Secure Media Systems**: Blockchain & cloud for IP protection, streaming, and delivery.
- 🧠 **Capstone, Research, and Industry Linkages**: Strong focus on innovation, internships, and entrepreneurship.