

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB

Syllabus for B.Sc. in 3D Animation Film Making (BAFM) Programme
(Effective for Students Admitted in Academic Session 2019-2020)

SEMESTER IV

Paper: DIGITAL PHOTOGRAPHY

Code: BAFM -401

Contacts Hours / Week: 5L+1T

Credits: 3

Marks: 100

Module	List Of Topics and Exercises
1	Objectives: This course concentrates on techniques, aesthetics and communication in the <ul style="list-style-type: none">• Photographic medium. Students learn the basics of digital photography through a series of• Invention Of Photography - Camera ,Choosing A Camera, Lenses: Type Of Lenses, Focusing, Focal Length, Aperture , Depth Of Field , Shutter Speeds, DSLR Camera, Image Sensor, ISO, Aspect Ratio, Full Frame, APS Sensors.
2	Image Composition: Rules For Composition, Subject Placement, Balance, Line Of Force, Vantage Point, Depth Etc. Working With Tripod And Other Supporting Accessories.

Suggested Readings: 1. Photography, the art of composition: Bert Krages

2. Photographic lighting Simplified: Susan McCartney

Paper: ACTING FOR ANIMATOR

Code: BAFM -402

Contacts Hours / Week: 5L+1T

Credits: 3

Marks: 100

Module	List Of Topics and Exercises
1	Study of Action sequences Study of some of the action sequences in feature films and animated films by observing them repeatedly
2	Act and Observe <ul style="list-style-type: none">• Working with short takes Acting and recording some of the action sequences including drama and comedy and observing them
3	Change Action in to Performance <ul style="list-style-type: none">• Try to act and develop rhythm in an action• Understanding the tense and relaxed situations• Drama and comedy situations• Attitude and emotions Performing a Scene <ul style="list-style-type: none">• Study the scene• Rehearsing and playing action with scene partners, improvisation• Performing scene in front of the audience

Suggested Readings: Acting for Animators Book by Ed Hooks

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Paper: RIGGING

Code: BAFM -491

Contacts Hours / Week: 2T+6P

Credits: 4

Marks: 100

Module	List Of Topics and Exercises
1	Focuses on creating character setups. Create skeleton and attach them to character meshes. Students will be encouraged to create animation friendly Rigs
2	Constrains <ul style="list-style-type: none">• Parenting and grouping objects using point, orient, parent constrains• Creating controllers, set driven keys etc.
3	Creating Skeletons <ul style="list-style-type: none">• Creating joints, editing joints, parenting joints, orienting joints• Creating hierarchical structures and skeletons for biped and quadruped characters• Using IK solvers on skeletons, blending FK and IK• Creating facial setups, blend shape deformers
4	Skinning <ul style="list-style-type: none">• Understanding Rigid Bind and Smooth Bind• Binding skeletons to characters• Painting skin weights, editing skin weights Adding influence objects and muscles

Suggested Software: Autodesk Maya

Suggested Readings: Body Language: 3D Character Rigging Book by Eric Allen and Kelly L. Murdock

Paper: CHARACTER ANIMATION

Code: BAFM -492

Contacts Hours / Week: 2T+6P

Credits: 4

Marks: 100

Module	List Of Topics and Exercises
1	Focuses on students developing skills necessary to bring life to characters. Encouraged to study principles of animation. To explore the effect of volume, weight, inertia, gravity through step by step exercises Animation Techniques <ul style="list-style-type: none">• Learning animation tools• Motion path animation• Graph editor, tangents Dope sheet, playback speed
2	Animating Characters <ul style="list-style-type: none">• Creating bouncing ball Animation, pendulum animation etc.• Line of action, extremes and breakdowns• Walk cycles, progressive walk, adding attitude in walks Body Mechanics <ul style="list-style-type: none">• Animating small actions to familiarize body weight, volume, gravity etc.• Lifting heavy objects, pushing and pulling objects,

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	Character interaction with objects
3	Facial Animation <ul style="list-style-type: none">Studying anatomy of the face, understanding how muscles work together to create expressions and emotions.Importing supported audio files into the timeline, using X-sheets, Synchronize expressions and mouth shapes to the audio

Suggested Software: Autodesk Maya

Suggested Readings: 1. How to Cheat in Maya: Tools and Techniques for Character Animation by [Eric](#)
2. Stop Staring: Facial Modelling and Animation Done Right

Paper: DYNAMICS

Code: BAFM -493

Contacts Hours / Week: 2T+6P

Credits: 4

Marks: 100

Module	List Of Topics and Exercises
1	This section focuses on understanding Visual Effects and adding VFX into an animation film Building a simulation <ul style="list-style-type: none">Understanding the rigid body solver, Setting animation ReferencesCreating passive & active rigid bodiesAdding a field<ul style="list-style-type: none">center of mass, setting an initial state, Imparting initial velocity
2	Directing a Simulation <ul style="list-style-type: none">Improving performance with stand-insDisabling rigid body nodes with IgnoreAdding bounce, friction, massTuning rigid body solver attributesLimiting a field with Max Distance
3	Fluids <ul style="list-style-type: none">Creating containersControl resolutionsBaking the simulation to key framesOcean effects Hair, fur, cloth
4	Internship Students have to undergo practical training for a period of 3 weeks on their own choice; the student has to submit the copy of the work done during the training process to the department for his assessment. The final evaluation is done through Viva-voce based on the work done during practical training.

Suggested Software: Autodesk Maya

Suggested Readings: VFX Fundamentals by Jackson Wallace

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Sessional

Paper: INTERNSHIP

Code: BAFM -481

Contacts Hours / Week: 4P

Credits: 2

Marks: 100

1	Internship Students have to undergo practical training for a period of 4Practical , on their own choice; the student has to submit the copy of the work done during the training process to the department for his assessment. The final evaluation is done through Viva-voce based on the work done during practical training.
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