ACADEMIC PROGRAM

3D CHARACTER ANIMATION I

B.F.A. IN **ANIMATION**

MODALITY: ON CAMPUS

ACADEMIC YEAR: 2023-2024

Name of the course:	3D Character Animation I
Degree :	Animation
Location:	Centro Universitario de Tecnología y Arte Digital
Area:	Animation
Year:	2º
Teaching period:	2
Type:	OB
ECTS credits:	6
Teaching modality:	On campus
Language:	English
Lecturer / Email	David W. Mora Chamorro /david.mora@u-tad.com
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SUBJECT DESCRIPTION

Area description

The animation subject is oriented to enable students to acquire the skills that will allow them to convey emotions through the movement and performance of the characters using the 3D animation technique and acquiring the knowledge of other experimental animation techniques. They will apply the concepts of anatomy and mechanics of human body movement and the principles of traditional animation to 3D and experimental animation, transferring them to actions of increasing complexity, both in the physical simulation of movement and in the transmission of emotions through the attitude and gestures of the character.

Subject description

The knowledge acquired throughout the course will allow animators to clearly understand the mechanics of the body in bipedal characters at physiological and technical level. Allowing them to solve any exercise related to physics, both basic and advanced. Introduction to acting through pantomime (acting without dialogue), development of body language and emotions in order to solve an acting shot in production. 3D Character Animation (I) is an extension of the knowledge acquired in previous animation courses, providing new content for the animation of bipedal characters in 3D. The course will provide advanced technical and theoretical knowledge for the animation of body mechanics and pantomime in characters.

COMPETENCIES AND LEARNING OUTCOMES

Competencies
BASIC AND GENERAL

CB1 - That students have demonstrated possession and understanding of knowledge in an area of study that builds on the foundation of general secondary education, and is usually at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.

CB2 - That students know how to apply their knowledge to their work or vocation in a professional manner and possess the competencies usually demonstrated through the development and defense of arguments and problem solving within their field of study.

CB3 - That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.

CB4 - Students should be able to convey information, ideas, problems and solutions to both specialized and non-specialized audiences.

CB5 - That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

TRANSVERSALS

CT5 - Demonstrate versatility, flexibility and creativity in the development of projects, activities and works.

SPECIFIC

CE5 - Apply the traditional principles of animation to the digital animation of characters and other elements.

CE19 - Apply different techniques of experimental animation, for the realization of an animation according to the artistic and narrative style sought.

CE3 - Know and represent the anatomy, shape and proportion of the human body.

Learning outcomes
At the end of the degree, the graduate will be able to:

- Recreate the anatomy of the human figure from digital or physical references applied to character animation.

- Apply knowledge of human and animal anatomy to the animation and rigging of human and animal figures in 2D and 3D.

- Reconstruct the anatomy and body mechanics of bipedal characters at the physiological and technical level.

- Master the basic laws of animation in both traditional and digital environments.

- Recreate fluid movements to generate believable animations in characters and objects.

- Reconstruct the anatomy and body mechanics of bipedal characters at physiological and technical level.

- Know experimental and less frequent techniques in the industry such as stop motion, cut out or sand animation to produce original and unexpected results.

- Integrate digital and analog animation techniques in the search for new visual and expressive solutions.

- Generate stop motion animations by using models, rigs, cameras and specific software.

- Generate acting, secondary actions, overlapping and interactions between characters for the representation of emotions in the narrative context.

- Optimize the programming code used in an animation scene using the necessary debugging tools.

CONTENTS

· Poses, overlap, archs, appeal, curves

· Basic physics: weight, equilibrium, walking, running

· Methodology: references and planning

· Pantomime: framing, take, body language, emotions

SUBJECT SYLLABUS

Topic 1. Introduction and animator's tools

1.1. General overview of the subject and evaluation systems.

1.2 How to work. Sais. Backups. Studio Library.

1.3. Types of animation.

1.4. Review and deepening of the 12 principles of animation.

1.5. Referenced characters. Animation preferences.

1.6. Graph Editor, Gimbal lock. Motion trail.

1.7. Ik/Fk. Constraints. Deformers.

1.8. Selection layers.

Theme 2. Body mechanics and animation

3.1. Planning. Video references, thumbnails. Mental process of the character.

3.2. Character construction. Poses. Timing. Staging. How to transmit in a correct way what we want to tell.

3.3. Body mechanics. Deepening in the biomechanics of the joints: Weight and timing.

3.4. Realistic movement of the human body according to its functions (qualified walking cycle, chase, falls, fight...).

3.5. Body language to express emotions.

Theme 3. Animation shot

4.1. How to face an animation shot.

4.2. Idea, planning. Video references, thumbnails

4.3. Blocking of ideas. Body mechanics. Blocking plus and straight ahead (direct animation).

4.4. Passing to curves. Spline, refine and polish

TRAINING ACTIVITIES AND TEACHING METHODOLOGIES

TRAINING ACTIVITIES

LEARNING ACTIVITIES	Total hours	Hours of presence
Theoretical / Expository classes	20,00	20,00
Practical classes	35,56	35,56
Tutorials	4,44	2,22
Independent study and autonomous work of the student	32,22	0,00
Elaboration of work (group or individual)	53,33	0,00
Evaluation Activities	4,44	4,40
TOTAL	150	62,18

Teaching methodologies

Expository method or master class

Case method

Problem-based learning

Cooperative or collaborative learning

Inquiry-based learning

Flipped classroom or inverted classroom methodology

Gamification

TEMPORAL DEVELOPMENT

Topic 1. 3 weeks

Topic 2. 3 weeks

Topic 3. 4 weeks

Topic 4. 4 weeks.

EVALUATION SYSTEM

ASSESSMENT SYSTEM	MINIMUM SCORE RESPECT TO THE FINAL ASSESSMENT (%)	MAXIMUM SCORE RESPECT TO THE FINAL ASSESSMENT (%)
Assessment of participation in class, exercises or projects of the course	10	25
Assessment of assignments, projects, reports, memos	30	60
Objective test	30	60

GRADING CRITERIA

ASSESSMENT SYSTEM	ORDINARY EVALUATION	EXTRAORDINARY EVALUATION
Assessment of participation in class, exercises or projects of the course	10	10
Assessment of assignments, projects, reports, memos	45	45
Objective test	45	45

General comments on the evaluations/assessments

Any detection of plagiarism, copying or the use of bad practices (such as the use of AIs) in a paper or exam will result in a zero for that paper, a report to the faculty and academic coordinator and the application of the current regulations, which can lead to very serious penalties for the student".

"It is crucial to hand in assignments on time. A 10-minute courtesy period will be given during which the hand-in is considered to be on time. After this time, work may be handed in within 24 hours of the deadline, but with a penalty on the mark to be determined by the teacher. No work will be accepted after 24 hours".

LIST OF REFERENCES (BOOKS, PUBLICATIONS, WEBSITES):

Basic:

Williams, Richard. The Animator's Survival Kit

Recomendada:

Stanchfeld ,Walt.Gesture Drawing for the Animaton

Hooks, Ed. Actng for Animators, Revised Editon: A Comllete Guide to Performance

REQUIRED MATERIALS, SOFTWARE AND TOOLS

Type of classroom
Theory

Materials:
Display - Digital whiteboard, Laptop

Software:
Autodesk Maya