



## **ACADEMIC PROGRAM**

### **LIGHTING AND COMPOSITING I**

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

***MODALITY: ON CAMPUS***

***ACADEMIC YEAR: 2023-2024***

<b>Name of the course:</b>	<b>Lighting and Compositing I</b>
Degree :	Animation
Location:	Centro Universitario de Tecnología y Arte Digital
Area:	Digital Creation Techniques
Year:	3º
Teaching period:	2
Type:	OB
ECTS credits:	6
Teaching modality:	On campus
Language:	English
Lecturer / Email	Tomás Mesón Ramírez/tomas.meson@u-tad.com
Web page:	<a href="http://www.u-tad.com/">http://www.u-tad.com/</a>

## SUBJECT DESCRIPTION

### Area description

This subject provides the student with the knowledge of the procedures, techniques and digital artistic tools for the creation of characters and digital environments, using modeling techniques for three-dimensional representation in virtual environments and texturing and shading for the simulation of the representation of textures and materials of the digital object or character in the field of animation. In the subject of digital creation techniques the student also acquires the knowledge and skills necessary to create narrative content, applying the principles of audiovisual language to an environment of cameras and 3D elements, as well as their lighting and digital composition.

### Subject description

The course is an opening to the development process of the synthesis image. Lighting and composition are essential for the animation professional, who is capable of using these techniques to recreate lighting situations, behaviors, and optimize image processes. It is a subject where basic skills and abilities necessary for the creation, visual development and treatment of the image to be generated are acquired. The knowledge and handling of these techniques will allow the student to generate his own visual recreation and the visual interpretation of a script of a production pipeline.

## COMPETENCIES AND LEARNING OUTCOMES

## Competencies

### BASIC AND GENERAL

CG11 - Know the legal framework of the professions associated with the degree.

GC3 - Participate in the management of projects linked to the design and development processes of a digital product.

GC7 - Knowing the employability resources of the professions associated with the degree.

CG8 - Optimize the work according to the technological resources related to the processes and tools of the project to be developed.

CG9 - Use the techniques and artistic tools associated with the generation of digital content.

CB1 - That students have demonstrated to possess and understand knowledge in an area of study that starts from the basis of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront 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 skills that are 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 reflection on relevant social, scientific or ethical issues.

CB4 - That students can transmit 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

CT1 - To know the definition and scope, as well as to put into practice the fundamentals of the methodologies of management of technological development projects.

CT2 - To know the main agents of the sector and the complete life cycle of a project in development and commercialization of digital content.

CT4 - Update the knowledge acquired in the use of digital tools and technologies according to the current state of the sector and the technologies used.

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

### SPECIFIC

CE17 - Use texturing techniques to apply materials to 3D models.

SC4 - Represent three-dimensional forms and spaces using the essential techniques of traditional and digital modeling.

CE7 - Create audiovisual pieces applying the principles of composition, audiovisual narrative and graphics animation to the realization, planning, editing and post-production of sequences and shots.

CE9 - Use modeling techniques for the three-dimensional representation of shapes from a design.

CE11 - Use the theory, techniques and tools associated with lighting, rendering and compositing

### Learning outcomes

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

- Identify the impact of new digital media in today's society.
- Handle with ease digital tools for the creation of images, videos, modeling and artistic works.
- Use various techniques of artistic expression such as drawing, 3D modeling and postproduction for the generation of digital content.
- Model objects or figures with different techniques, whether digital or traditional.
- Represent objects and spaces in 3D through modeling, texturing, lighting and digital rendering.
- Apply the basic techniques of digital modeling to the creation of objects, figures and 3D environments with clean and optimized modeling meshes.
- Manage the interaction between different materials and lighting systems in 3D and 2D creative environments.
- Create environments with a high degree of verisimilitude through the use of layers, alphas and other basic digital compositing techniques.
- Identify software and hardware requirements for lighting, rendering and compositing.
- Apply the required textures and shaders convincingly and according to the needs of the production to the various parts of a 3D animation scene such as sets, objects or characters.
- Apply the fundamentals of visual language to the digital environment.
- Adapt the anthropometric and proportion rules used in other arts such as architecture or painting for the recreation of a virtual landscape.

## CONTENTS

- Lighting and Composition in the CG Pipeline: virtual representation of light.
- Lighting systems: interior, exterior, direct, global.
- Light, materials and shaders.
- 3D Composition interface.
- Basic composition techniques: Channels, alphas, layers, Proportion and fields
- Color Management and Correction
- Gestión y Corrección de color.
- Precomp and Final Correction.

## SUBJECT SYLLABUS

## Topic 1. Maya and Arnold lights

### 1.1. Basic Parameters (Intensity, Exposure, Radius, Samples)

### 1.2. Volumetrics

### 1.3. Rendering

## Topic 2. Render Layers

### 2.1. Layers and Collections

### 2.2. Overrides

### 2.3. Basic Nuke Compositing

## Topic 3. AOVs

### 3.1. Basic AOVs

### 3.2. Uses in Nuke

## Topic 4. Integration

### 4.1. Integral lighting

### 4.2. Replicating scenes from real image movies: interior, exterior, transition scene from interior to exterior

## TRAINING ACTIVITIES AND TEACHING METHODOLOGIES

### TRAINING ACTIVITIES

LEARNING ACTIVITIES	Total hours	Hours of presence
<i>Theoretical / Expository classes</i>	24,00	24,00
<i>Practical classes</i>	30,00	30,00
<i>Tutorials</i>	5,20	2,60
<i>Independent study and autonomous work of the student</i>	38,00	0,00
<i>Elaboration of work (group or individual)</i>	48,00	0,00
<i>Evaluation Activities</i>	4,80	5,00
<b>TOTAL</b>	150	61,6

### 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

Theme 1-8 weeks

Theme 2- 5 weeks

## EVALUATION SYSTEM

ASSESSMENT SYSTEM	MINIMUM SCORE RESPECT TO THE FINAL ASSESSMENT (%)	MAXIMUM SCORE RESPECT TO THE FINAL ASSESSMENT (%)
<i>Assessment of participation in class, exercises or projects of the course</i>	10	20
<i>Assessment of assignments, projects, reports, memos</i>	20	60
<i>Objective test</i>	30	70

## GRADING CRITERIA

ASSESSMENT SYSTEM	ORDINARY EVALUATION	EXTRAORDINARY EVALUATION
<i>Assessment of participation in class, exercises or projects of the course</i>	10	10
<i>Assessment of assignments, projects, reports, memos</i>	30	30
<i>Objective test</i>	60	60

## General comments on the evaluations/assessments

Students must internalize Maya's lighting tools and their uses; as well as Nuke's compositing tools; and demonstrate it through the delivery of the assignments to pass the course satisfactorily.

-Students must master the software and the medium we will use to create environments and lighting suitable for film production.

Submitting assignments on time is crucial. A 10-minute courtesy period will be granted during which the delivery will be considered on time. After this concession, work may be submitted within a maximum of 24 hours after the deadline, but with a penalty on the grade that will be determined by the teacher. No work will be accepted after 24 hours.

-Any detection of plagiarism in a work or exam will imply the failure of that work with a zero, the report to the faculty and academic coordinator and the application of the current regulations, which can lead to very serious penalties for the student.

-The final numerical grade will be from 0 to 10, being a 5 the minimum grade to pass, a practice must be passed at the end of the course that brings together all the knowledge learned in the course.

- In the extraordinary call, a final practical must be handed in, which will be worth 100% of the grade.

## LIST OF REFERENCES (BOOKS, PUBLICATIONS, WEBSITES):

Basic:

KERLOW, Isaac (2009): The art of 3D: Computer Animation and Effects. John Wiley & Sons.

TAYLOR-HAW, Calvey (2009): La iluminación en el estudio fotográfico. Omega.

LOISELEUX, J. (2005). La luz en el cine: Cómo se ilumina con palabras. Ed. Paidós

Bibliografía recomendada:

MELLADO, José María (2013): Fotografía de Alta Calidad. Anaya Multimedia.

PALAMAR, Todd (2013): Mastering Autodesk Maya 2013. Sybex. WRIGHT, Steve (2011): Compositing Visual Effects. Focal Press.

## REQUIRED MATERIALS, SOFTWARE AND TOOLS

### Type of classroom

Theory

### Materials:

Display - Digital whiteboard, Laptop

**Software:**

Autodesk Maya, Nuke