



Course guide

804462 - FI - Photography and Lighting

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Unit in charge: Image Processing and Multimedia Technology Centre
Teaching unit: 804 - CITM - Image Processing and Multimedia Technology Centre.

Degree: BACHELOR'S DEGREE IN DIGITAL DESIGN AND MULTIMEDIA TECHNOLOGIES (Syllabus 2023).
(Compulsory subject).

Academic year: 2024 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Bigas Tañà, Miquel

Others: Martínez Navarro, Beatriz

TEACHING METHODOLOGY

It is planned to hold theoretical class sessions and practical sessions.

Theoretical class sessions are generally divided into four activity bands:

1. Resolution of doubts regarding the exercises proposed in the previous session.
2. Review of solved exercises.
3. Explanation of new contents.
4. Explanation of the next exercise and complementary materials.

These activity bands are modulated according to the complexity of the exercises and the corresponding contents.

LEARNING OBJECTIVES OF THE SUBJECT

Knowledge or contents

Identify the technological concepts and processes involved in the formation and recording of photographic images, both still and moving, in the context of the production of visual content.

Skills

Properly apply the procedures and techniques for the acquisition, editing, production, post-production of images and sound in audiovisual and multimedia productions.

Solve problems related to lighting in real and virtual environments in audiovisual productions, depending on the characteristics of the scene and the desired final result.

Apply concepts related to the control of the visualisation of objects and scenes by means of viewfinders and synthetic cameras and stage lighting techniques, recreating real or imaginary environments, in multimedia audiovisual productions.

- Identify the lighting concepts involved in the creation of real or virtual images and correctly design the lighting of an object, portrait or scene.
- Operate with the lighting basics to control the type of shadows, reflections and textures in a given scene.
- Understand the lighting concepts involved in the creation of real or virtual images and be able to properly illuminate an object or scene.
- Understand the lighting basics (brightness, color, specularly and diffusion, and contrast) and know how to simulate and parameterize lights and shadows in 3D design computer programs.
- Correctly apply camera and lighting settings to adapt to different situations and requirements of a photographic or audiovisual production.
- Plan the most appropriate workflow in the different phases of the structure of a photographic or audiovisual production.
- Identify the characteristics of the various image capture instruments and relate them to the needs of a specific assignment, with the aim of optimizing resources and the result obtained.

STUDY LOAD

Type	Hours	Percentage
Hours large group	30,0	20.00
Hours medium group	18,0	12.00
Guided activities	12,0	8.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

Topic 1 - Introduction to photographic techniques

Description:

- Concept of image structure
- Photographic image formation
- Technique and communication

Full-or-part-time: 5h

Theory classes: 2h

Self study : 3h

Topic 2: Concept of lighting and image capture

Description:

- The importance of light in image creation
- Light as electromagnetic radiation
- Light/matter interaction
- Concept of exposure and camera adjustments for their control
- Light intensity, exposure and image quality
- Dynamic range

Related activities:

Exercises 1 and 3

Full-or-part-time: 20h

Theory classes: 8h

Self study : 12h

Topic 3: Relationships between illuminant, luminaire and object

Description:

- Difference between illuminant and luminary
- Light characteristics: direction, quality, effective size, contrast and color.
- Effects of light on objects: own and projected shadows, texture, specularly and color.

Related activities:

Exercises 1, 2 and 3

Full-or-part-time: 30h

Theory classes: 12h

Self study : 18h



Topic 4: Lighting concepts and techniques creating computer generated images (CGI)

Description:

- Relationship between real light and virtual light
- Virtual light sources and parameters
- Global lighting and rendering

Related activities:

Exercises 1, 2 and 3

Full-or-part-time: 20h

Theory classes: 8h

Self study : 12h

Topic 5: Photographic technique and CGI

Description:

- Photographic image formation: optical system and recording
- Camera adjustments
- Point of view, perspective and form translation
- Depth of field
- Motion capture
- CGI photographic aspects

Related activities:

Exercises 3, 4 and 5

Full-or-part-time: 30h

Theory classes: 12h

Self study : 18h

Topic 6: Image capture equipment

Description:

- Camera types
- The digital sensor
- Lens types
- The RAW format and its processing
- Concept of Image Quality
- Capture equipment and image quality

Related activities:

Exercises 3, 4 and 5

Full-or-part-time: 25h

Theory classes: 10h

Guided activities: 15h



topic 7: Real and virtual images fusion

Description:

- Photomontage preproduction
- Images production in photomontage
- Post-production, composition and image fusion

Related activities:

Final project

Full-or-part-time: 20h

Theory classes: 8h

Self study : 12h

ACTIVITIES

Exercise 1: Light direction and quality

Description:

The exercise consists of making images that will be a challenge to work on the concepts of exposure, direction and light quality. There will be a practical part that will be done at studio in groups using the objects provided by the teachers and another part that will be done with CGI individually.

This challenge will be a difficulty-based learning approach, so some targets will be achievable and some will not.

Full-or-part-time: 5h

Self study: 3h

Guided activities: 2h

Exercise 2: Contrast and light color

Description:

The exercise consists of making images that will be a challenge to work on the concepts of contrast and color with artificial and natural light. The exercises will be done in groups, one part at studio and another part on location, making portrait images.

This challenge will be a difficulty-based learning approach, so some targets will be achievable and some will not. In addition, the same images will be created with CGI individually.

Full-or-part-time: 5h

Self study: 3h

Guided activities: 2h

Exercise 3: Lightpainting

Description:

The exercise consists of making images that will be a challenge to work on the concepts of sharpness and movement. There will be a practical part that will be done at studio in groups and another part that will be done with CGI individually.

This challenge will be a difficulty-based learning approach, so some targets will be achievable and some will not.

Full-or-part-time: 5h

Self study: 3h

Guided activities: 2h



Exercise 4: Point of view and perspective

Description:

The exercise consists of making images that will be a challenge to work on the concepts of point of view, perspective and visual field. The exercise will be done individually in a location chosen by the student.

This challenge will be a difficulty-based learning approach, so some targets will be achievable and some will not.

Full-or-part-time: 5h

Self study: 3h

Guided activities: 2h

Exercise 5: focusing and depth of field

Description:

The exercise consists of making images that will be a challenge to work on the concepts of focusing and depth of field. There will be a practical part that will be done at studio in groups using the objects provided by the teachers and another part that will be done with CGI individually.

This challenge will be a difficulty-based learning approach, so some targets will be achievable and some will not.

Full-or-part-time: 5h

Self study: 3h

Guided activities: 2h

Final Project

Description:

The project consist of the image creation merging photographs and CGI images. In the process, the concepts and techniques worked on in topic 7 will be applied .

Full-or-part-time: 20h

Self study: 5h

Guided activities: 15h

GRADING SYSTEM

The final mark of the subject will be calculated from the following exams and exercises, applying their corresponding weightings:

- 4 practical exercises - 50% (P01-10%, P02-10%, P03-10%, P04-10%, P05-10%)
- 1 Partial Exam - 15%
- 1 Final Project - 25%
- Participation and learning attitude - 10%

Students who do not pass the subject through continuous assessment may sit the reassessment exam, provided they do not have a NP qualification. In this exam, the grades corresponding to the partial exam and the report of the final work (25% of the subject) will be reassessed.

Irregular actions that may lead to a significant variation in the grade of one or more students constitute a fraudulent performance of an evaluation act. This action will lead to a descriptive grade of fail and a numerical grade of 0 for the ordinary global assessment of the subject, without the right to re-evaluation.

If the teachers have evidence of the use of AI tools that are not permitted in the assessment tests, they may summon the students involved to an oral test or a meeting to verify the authorship.



EXAMINATION RULES.

The practice exercises are explained and started during class time and are completed outside of the scheduled class time following the instructions given in the corresponding Practice Sheet document and the instructions given for that purpose 'have given in the part of the corresponding class.

The practical exercises will be delivered using the delivery space of the subject's classroom in the Virtual Campus, following the instructions described in the corresponding Practice Sheet document and following the indicated deadlines. Practices submitted after the deadline will not be accepted. The correct management of the documentation provided is an aspect related to the skills to be acquired and is, therefore, subject to evaluation.

The evaluation of the practices does not only entail the resolution of the proposed exercises, but also the defense of the results when the student is required to do so at the beginning of the classes.

Any incident that does not allow the practice to be resolved within the indicated period will be communicated to the corresponding teacher by means of a message via the Virtual Campus; after this communication, the pertinence or not of any cause that motivates the non-presentation of the exercise will be resolved and the alternatives will be established to complete the evaluation if the causes are justified. The reasons for non-presentation of exercises that are communicated to the teaching staff by the Head of Studies will also be considered justified.

BIBLIOGRAPHY

Basic:

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- Biver, Steven; Fuqua, Paul; Hunter, Fil; Reid, Robin. Luz. Ciencia y magia. Introducción a la iluminación fotográfica. 6ena ed. Madrid: Anaya Multimedia, 2023. ISBN 978-84-415-4733-9.
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- Stroebel, Leslie. View camera technique . 6th ed. Boston [etc.] : Focal Press, cop. 1993. ISBN 024080158X.
- Ray, Sidney F. Applied photographic optics : lenses and optical systems for photography, film, video and electronic imaging . 2nd ed. Oxford [etc.] : Focal Press, 1994. ISBN 0240513509.
- Freeman, Michael. El ojo del fotógrafo. 1a. Blume, 2018.
- Davies, Adrian; Fennessy, Phil. Electronic imaging for photographers . 2nd ed. Oxford : Focal Press, 1996. ISBN 0240514416.