Information about the course

Degree: Degree in Design and Narration in Animation and Video games

Faculty: Faculty of Legal, Economic and Social Sciences

Code: 2050324 **Name:** Programming foundations

Credits: 6,00 ECTS **Year:** 3 **Semester:** 1

Module: PROGRAMACIÓN DE VIDEOJUEGOS

Subject Matter: FUNDAMENTOS DE LA PROGRAMACIÓN **Type:** Obligatoria

Branch of knowledge:

Department: Multimedia and Digital Arts

Type of learning: Classroom-based learning

Language/-s in which it is given: Spanish

Teachers:

2053A David Ponce Segura **(Profesor responsable)** david.ponce@ucv.es

Module organization

PROGRAMACIÓN DE VIDEOJUEGOS

Subject Matter	ECTS	Subject	ECTS	Year/semester
FUNDAMENTOS DE LA PROGRAMACIÓN	12	Arithmetic foundations of video game programming	6	3/1
		Programming foundations	6	3/1
PROGRAMACIÓN	30	2D video game programming	6	3/2
		3D video game programming	6	4/1
		Artificial Intelligence for Video Games	6	4/1
		Online game programming	6	4/1
		Virtual reality	6	4/2

Recommended knowledge

It is recommended to have completed the course “Fundamentals of Programming” or to have basic knowledge of an object-oriented programming language.

Learning outcomes

At the end of the course, the student must demonstrate having acquired the following learning outcomes:

R2 - Use basic vocabulary specific to the field of programming languages. RA12.75

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Illustrate and generate specific animation and video game projects using traditional procedures and digital techniques

R3 - Organise the logical problems of the video game into units that can be solved using programming languages. RA12.76

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Illustrate and generate specific animation and video game projects using traditional procedures and digital techniques

R4 - Construct flowcharts that solve computational tasks. RA12.77

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Illustrate and generate specific animation and video game projects using traditional procedures and digital techniques

R5 - Develop basic computer programmes that can form part of a video game, taking into account the sincere search for the whole truth and the integration of all dimensions of the human being in the face of life's big questions, applying the principles derived from the concept of integral ecology and respecting and putting into practice the ethical principles and proposals for action derived from the sustainable development goals. RA12.78 / RA6.27 / RA7.27 / RA8.34

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Illustrate and generate specific animation and video game projects using traditional procedures and digital techniques

Type of AR: Competencias

- Apply the principles derived from the concept of integral ecology to their proposals or actions, regardless of their scope, area of knowledge, and the contexts in which they are presented.

- Develop theoretical and practical responses based on the sincere search for the full truth and the integration of all dimensions of the human being in response to life's major questions.

- Respect and implement the ethical principles and action proposals derived from the Sustainable Development Goals, applying them to all academic and professional activities.

Assessment system

In-person modality

Assessed learning outcomes	Granted percentage	Assessment tool
	30,00%	SE1 – Written exams.
	30,00%	SE6 – Practical exams.
	40,00%	SE8 – Project development.

Observations

The use of artificial intelligence for problem-solving, the design of complete algorithms, the generation of code for deliverable exercises, or during exam tests is strictly prohibited. However, its use is recommended in the completion of practical assignments for self-correction purposes and to consult specific uses of functions or particularities of the programming language.
The distinction of “Honors with Distinction” (*Matrícula de Honor*) may be awarded to students who have obtained a grade equal to or higher than 9.0. The number of such distinctions may not exceed five percent of the students enrolled in a group for the corresponding academic year, unless the number of enrolled students is small.
According to Article 9 of the General Regulations for the Evaluation and Grading of Official Degrees and UCV’s Own Degrees, the continuous assessment system is the preferred method of evaluation at UCV. Article 10, however, allows for those students who, with justified and documented reasons, demonstrate their inability to attend in person (or to participate in synchronous communication activities in virtual and/or hybrid teaching modalities), to be evaluated extraordinarily through what is known as *single evaluation*. This single evaluation must be requested within the first month of each semester from the Faculty Dean’s Office through the Associate Deans or Master’s Program Directors, who are responsible for deciding whether to

accept the student's request.
For this course, the evidence to be submitted and/or the test(s) to be completed in the single evaluation by the student are as follows: completion of a final exercise covering all the concepts studied in the course (50%) and a final exam (50%).

MENTION OF DISTINCTION:

The mention of "Honors" may be awarded to students who have obtained a grade equal to or greater than 9.0. Their number may not exceed five percent of the students enrolled in a group in the corresponding academic year, unless the number of students enrolled is lower.

Training activities

The methodologies to be used so that the students reach the expected learning outcomes will be the following:

M2 MD2: Interactive lecture

M4 MD4: Problem-solving exercises

M6 MD6: Project-based learning

IN-CLASS TRAINING ACTIVITIES

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
AF2 – Active listening, elaboration and formulation of questions, summaries, concept maps and/or notes that organize the information received, and related work.	R2, R3, R4	MD2: Interactive lecture MD4: Problem-solving exercises	18,00	0,72
AF4 – Application of the theory learned in real or simulated situations.	R3, R4, R5	MD4: Problem-solving exercises MD6: Project-based learning	30,00	1,20

AF6 – The student, individually or collectively, focuses on producing a tangible final result (product) that incorporates the knowledge and skills necessary for its realization.	R3, R4, R5	MD4: Problem-solving exercises MD6: Project-based learning	12,00	0,48
TOTAL			**60,00**	**2,40**

TRAINING ACTIVITIES OF AUTONOMOUS WORK

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
AF8 – Independent work. Study, memorization, exam preparation, practice of practical skills, preparation of assignments, essays, reflections, metacognitive activities, portfolio development, etc.	R2, R3, R4	MD2: Interactive lecture MD4: Problem-solving exercises MD6: Project-based learning	15,00	0,60
AF6 – The student, individually or collectively, focuses on producing a tangible final result (product) that incorporates the knowledge and skills necessary for its realization.	R3, R4, R5	MD4: Problem-solving exercises MD6: Project-based learning	45,00	1,80
AF4 – Application of the theory learned in real or simulated situations.	R3, R4, R5	MD4: Problem-solving exercises MD6: Project-based learning	30,00	1,20
TOTAL			**90,00**	**3,60**

Description of contents

Description of content necessary for the acquisition of learning outcomes.

Theoretical content:

Block of content	Contents
Content	·History and types of programming languages ·Variables and operators ·Control structures ·Functions and parameters ·Arrays ·Classic algorithms in video games

Temporary organization of learning:

Block of content	Sessions	Hours
Content	30	60,00

References

Learning p5.js: A hands-on introduction to making interactive graphics. Make Media. McCarthy, L., Reas, C., & Fry, B. (2015).