Information about the course

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

Faculty: Faculty of Legal, Economic and Social Sciences

Code: 2050432 **Name:** Artificial Intelligence for Video Games

Credits: 6,00 ECTS **Year:** 4 **Semester:** 1

Module: PROGRAMACIÓN DE VIDEOJUEGOS

Subject Matter: 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:

2054A	Juan Peralta Donate **(Profesor responsable)**		juan.peralta@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

Other types of requirements

Para cursar las asignaturas: Programación de videojuegos 3D, Inteligencia artificial para videojuegos, Programación de juegos en red y Realidad virtual, se recomienda haber superado las asignaturas de: Fundamentos de programación y Fundamentos aritméticos para programación de videojuegos.

Learning outcomes

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

R1 - Solving problems and situations encountered in a video game using artificial intelligence languages. RA12.80

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

R2 - Develop artificial intelligence algorithms to solve problems in video game programming. RA12.81

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

Assessment system

In-person modality

Assessed learning outcomes	Granted percentage	Assessment tool
	20,00%	SE1 – Written exams.
	30,00%	SE6 – Practical exams.
	50,00%	SE8 – Project development.

Observations

Detection of plagiarism or copying of any work will result in failure of the assignment. Plagiarism is
considered to be the use of other people's work not cited by the author or the abusive use of material not their own in the preparation of the assignment (more than 35%). Copying in the exam
will result in failure of the entire course, and the student will not be able to submit it for the second sitting.
Work submitted after the established deadline will not be accepted and will always be submitted via the virtual classroom.
Exam and Final Grade:
A pass on the final exam is required (minimum grade of 5 out of 10) to be computed and averaged
with the rest of the grades obtained during the course. A failure on the exam cannot be compensated with a high grade in the practicals. Therefore, failing the exam will result in failure of
the sitting. In any case, if the first sitting has not been approved, the student may take and pass

the
second sitting exam to pass the course.
Cheating on the exam will result in failing the entire course, and the student will not be able to take
the second sitting.
Criteria for granting honors:
The "Honors" distinction may be awarded to students who have obtained a grade equal to or higher 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.
Single Assessment:
According to Article 9 of the General Regulations for the Assessment and Grading of Official Studies and UCV-Owned Degrees, the single assessment is linked to the inability of students enrolled in a face-to-face degree to attend. It is, therefore, an extraordinary and exceptional assessment system available to students who, with justification and accreditation, are unable to submit to the continuous assessment system. They may request this from the professor in charge of
the subject, who will expressly decide on the admission of the student's request for a single assessment and will inform them of the acceptance/denial.
Regarding the subject of Artificial Intelligence for Video Games, the minimum attendance required
is 70%, which is the limit to be taken into account for any potential request for a single assessment.
This, if granted, will be based on the following criteria:
In the first call:
Complete all assignments requested by the instructor during the course. A grade point average of 5
must be obtained for all of these activities.Pass the exam.
In the second call:
Complete all assignments requested by the instructor during the course. A grade point average of 5
must be obtained for all of these activities.Pass the exam.
Regarding the use of AI:
Although the use of generative AI is not recommended, students may use it for:
Reference and assisted learning.Searching for alternative resources and references.Improving the
writing of texts, provided the content is original.Students may not use AI for:
Presenting AI-generated work as their own.Performing any part of the creative process of scriptwriting or analyzing audiovisual and/or interactive productions using AI.Citation and

attribution
criteria:
If AI is used in any of the activities, the teacher must be notified in advance, citing the part of the activity, which AI was used, and what it was used for (source consultation, style analysis, knowledge
expansion, etc.).

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:

M4 MD4: Problem-solving exercises

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.	R1, R2	MD4: Problem-solving exercises	12,00	0,48
AF5 – Analysis of exemplary realities — real or simulated — allowing the student to connect theory with practice, learn from real-world models, or reflect on the processes used in the presented cases.	R1, R2	MD4: Problem-solving exercises	12,00	0,48

AF6 – The student, individually or collectively, focuses on producing a tangible final result (product) that incorporates the knowledge and skills necessary for its realization.	R1, R2	MD4: Problem-solving exercises	36,00	1,44
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.	R1, R2	MD4: Problem-solving exercises	16,00	0,64
AF6 – The student, individually or collectively, focuses on producing a tangible final result (product) that incorporates the knowledge and skills necessary for its realization.	R1, R2	MD4: Problem-solving exercises	56,00	2,24
AF5 – Analysis of exemplary realities — real or simulated — allowing the student to connect theory with practice, learn from real-world models, or reflect on the processes used in the presented cases.	R1, R2	MD4: Problem-solving exercises	18,00	0,72
TOTAL			**90,00**	**3,60**

Description of contents

Description of content necessary for the acquisition of learning outcomes.

Theoretical content:

Block of content	Contents
Materia 1	• *Introduction to artificial intelligence.* • *Search problem solving.*
Materia 2	• *Knowledge representation.* • *Planning*
Materia 3	• *Machine learning.* • *Specific languages for artificial intelligence.*

Temporary organization of learning:

Block of content	Sessions	Hours
Materia 1	10	20,00
Materia 2	10	20,00
Materia 3	10	20,00

References

- Artificial Intelligence for Games. Editorial CRC Press. ISBN 978-0123747310.

- Unity e inteligencia artificial. Programación, multijugador y aprendizaje automático desde cero.
Editorial RA-MA. ISBN 979-13-87764-64-7.