

30262 - Videogames

Syllabus Information

Academic year: 2023/24

Subject: 30262 - Videogames

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 439 - Bachelor's Degree in Informatics Engineering

ECTS: 6.0

Year: 4

Semester: Second semester

Subject type:

Module:

1. General information

The current state of the video game world will be presented, its history and evolution in different platforms will be reviewed, and it will be presented as a type of software project of great complexity and multidisciplinary, even for apparently simple games. The 2D and 3D graphics will play a leading role due to the great importance of the visual aspect. All this illustrated with examples of successful video games developed by national and international companies, whose organization, structure, and jobs characteristic of this sector will be presented throughout the subject.

These approaches and goals are aligned with the following Sustainable Development Goals (SDGs):

- Goal 8: Decent work and economic growth. Targets 8.2 and 8.3.
- Goal 9: Industry, innovation and infrastructure. Target 9.5.

2. Learning results

The student, in order to pass this subject, must demonstrate that:

- Know the multidisciplinary aspect of video games, both from a computer science point of view and from a general point of view (engineering, art, creativity, entertainment, psychology, etc.). Know and apply game theory models and techniques.
- Acquire a knowledge base for the understanding of artificial intelligence technologies in video games in order to develop entities that have credible and/or realistic behavior, while challenging but accessible to the player.
- Know and be able to use the available game engines for new developments and the knowledge of the most commonly used development platforms.
- Apply electronic game techniques beyond the field of entertainment ("serious games"): education, awareness, marketing, etc.

3. Syllabus

1. Introduction

- what is a video game?
- The entertainment industry.

2. The video game as a software project

- From idea to game.
- Video game companies. Human resources.
- Production and implementation. Artificial Intelligence.
- Gameplay adjustment.

- Ethics and legislation: PEGI.

3. Real-time graphics generation

- 2D and 2.5D graphics.
- Real-time 3D graphics. GPU's.
- Real-time synthetic image generation.
- Physics and animation.

4. History and evolution of video games

- Platforms: Arcade machines, computers, consoles, mobile devices
- Landmark video games.
- Evolution of graphics and sound.
- Controllers.
- Preservation

For more details, see [subject web site](#).

4. Academic activities

The program offered to the student to help them achieve the expected results includes the following activities

- The syllabus will be developed in the classes taught in the classroom.
- In the problem classes, problems of application of the concepts and techniques presented in the program will be solved.
- The practical sessions will take place in a computer laboratory. In these sessions the student should do practical work related to the subject.

5. Assessment system

The student must demonstrate achievement of the intended learning results through the assessment activities:

- Practical work in the laboratory (40%): Group work will be carried out, and students' learning progress will be monitored during the term. Students who meet the deadlines set, and obtain at least a 5, will be exempt from taking a practical exam; in addition, if they obtain a minimum of 7 in the laboratory practices, they will be exempt from taking the written or oral test described in the following point and the final grade of the course will be directly the grade obtained in laboratory practices.
- Written or oral test (40%). In this test, questions and/or problems and/or practical work related to the program taught in the subject will be presented.
- Public presentation of progress in laboratory practices and attendance to invited lectures (20%). Each group will publicly present the evolution of their laboratory work.

The final grade will be obtained by means of the weighted average of the previous sections. Each test must be passed by separately; otherwise the final grade will be the maximum between the grades that do not exceed the pass grade.