

30262 - Videogames

Syllabus Information

Academic Year: 2022/23

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

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented:

- The presentation of contents by the professors, and the resolution of exercises in class.
- The personal study by the students and their participation in class in solving exercises.
- The development of practical assignments by the students, oriented by the professors, who will develop the theoretical knowledge acquired.

It must be taken into account that, although the course has a practical orientation, acquiring the needed theoretical knowledge is also required. Therefore, the learning process emphasizes both the theoretical concepts and the individualized-study as well as the development of practical work.

4.2. Learning tasks

The course includes the following learning tasks:

- The subject program will be developed in the classroom.
- Problems with concept application and techniques explained in the program of the subject will be solved in special classes dedicated to those problems.
- Practical sessions will take place in computer labs. In such sessions, students will develop practical work related to this subject.

4.3. Syllabus

The course will address the following topics:

1. Introduction

- What is a videogame?
- Videogames as the entertainment industry. Statistics and state of the art.
- Social impact. Electronic leisure
- Impact in other areas. Serious games.

2. Videogames as software projects

- Creativity and design: From an idea to a game
- Videogame companies. The human team
- Production and implementation
- Basic architecture
- Playability adjustment
- Ethics and legislation. PEGI

3. History and evolution of videogames

- Architectures: arcade game machines, computers, game consoles, mobile devices
- Milestone videogames. Main genders
- Evolution of graphics and sound
- Impact of the Internet in videogames
- Game controllers: Videogame interaction
- Videogame preservation

4. Real-time graphics

- 2D and 2.5D graphics
- Introduction to 3D graphics in real-time. GPUs graphics pipelines (traditional and recent alternatives)
- Real-time synthetic image generation: transformations, shading models, textures, antialiasing
- Physics (simulation) and animation: basic concepts

5. Artificial Intelligence for videogames

- Review of classic IA techniques
- The Turing Test in the area of videogames
- NPCs: Behavior, personality, and interaction
- Design of controllers: Neural networks and evolutionary computation
- Group techniques: Swarming and learning
- Introduction to advanced techniques

Some of these issues will be the focus of invited talks by professionals from videogames companies.

For more details, visit [the web of the subject](#).

4.4. Course planning and calendar

The calendar of classes, lab sessions, exams, and classrooms, as well as the dates of presentation of intermediate evaluations, will be announced in advance, according to the sessions and dates established by the School (<http://eina.unizar.es>).

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?id=9005>

Web page of the course:

<http://webdiis.unizar.es/asignaturas/videojuegos/>