

## 30262 - Videogames

### Syllabus Information

**Academic Year:** 2019/20

**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

### 1.1.Aims of the course

### 1.2.Context and importance of this course in the degree

### 1.3.Recommendations to take this course

## 2.Learning goals

### 2.1.Competences

### 2.2.Learning goals

### 2.3.Importance of learning goals

## 3.Assessment (1st and 2nd call)

### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

## 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, and exams, 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.

### 4.5.Bibliography and recommended resources

#### Bibliography

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30262&Identificador=15426>

Design and history of videogames:

- Juan A. Estallo, "*Los Videojuegos. Juicios y Prejuicios*", Editorial Planeta S.A., ISBN 84-08-01291-6, 1995
- Steven Collins, "*Computer Graphics During the 8-bit Computer Game Era?*", ACM SIGGRAPH Computer Graphics, Vol. 32, No.2, May 1998.

- Rusel DeMaria and Johnny Lee Wilson, *High Score!: The Illustrated History of Electronic Games*, McGraw-Hill Osborne, ISBN 0-07-222428-2, 2ª edición 2003
- El Jueves - Extra Videojuegos, nº 1490, 14-20 diciembre, 2005.
- J. Thompson et al, *Videojuegos. Manual para diseñadores gráficos*, ed. Gustavo Gili, ISBN 978-84-2522266-5, 2008
- Alejandro Crespo, *150 Videojuegos a los que tienes que jugar al menos una vez en la vida*, Ediciones Martínez Roca, ISBN 978-84-270-3654-3, 2010
  - Sin imágenes (?), cada juego se describe con la misma estructura: contexto social, argumento, características técnicas, aportaciones (?), reparto temporal equilibrado (70-80's: 50 videojuegos, 90's: 57, 00's: 43) (?)
- Juan Carrillo, Ana Sebastián, *Marketing Hero. Las Herramientas Comerciales de los Videojuegos*, ESIC Editorial, ISBN978-84-7356-695-7, 2010
  - Todos los aspectos del videojuego como producto comercial, interesante y ameno.
- Tony Mott, *1001 Videojuegos a los que hay que jugar antes de morir?*, Grijalbo, ISBN 978-84-253-4618-7, 960 pág., 2011
  - 1001 videojuegos (?), una página con foto y aportaciones por juego (?), reparto temporal poco equilibrado (70-80's: 158 páginas, 90's: 238, 00's: 522, 10's: 12) (?)
- Daniel González, *Diseño de Videojuegos. Da Forma a tus Sueños*, Ra-Ma, ISBN 978-84-9964-078-5, 2011
  - Abundantes consejos sobre el diseño de videojuegos y otros aspectos relacionados
- Jaume Esteve Gutiérrez, *Ocho Quilates (Una historia de la Edad de Oro del software español (I) (1983-1986))?*, Star-T Magazine Books, ISBN 978-84-615-9537-2, 2012.
- Jaume Esteve Gutiérrez, *Ocho Quilates (Una historia de la Edad de Oro del software español (II) (1987-1992))?*, Star-T Magazine Books, ISBN 978-84-616-1114-0, 2012.
- Juan P. Ordóñez, *Power-Ups. Conviértete en un profesional de los videojuegos*, Plan B, ISBN 978-84-941128-3-6, 2013
  - Primer 50% presentando los distintos departamentos de empresas de videojuegos con testimonios de profesionales (?), segundo 50% cubriendo todos los aspectos para poder convertirse en un profesional del sector (cómo hacer un CV, búsqueda de empleo, entrevistas, aspectos legales, etc.) (?). Solo texto, ni una imagen, gráfico, o fotografía en todo el libro (?)
- J. Relinque "Pedja", J.M. Fernández "Spidey", *Génesis. Guía esencial de los videojuegos españoles de 8 bits*, Héroes de Papel, ISBN978-84-942881-4-2, 2015.
  - Una completa guía con TODOS los videojuegos de creación española durante la Edad de Oro del software español (1983-1992)
- J. Duch, H. Tejedor, *Sonido, Interacción, y redes?*, Universidad Oberta de Catalunya, PID\_00188486

#### Graphics and physics:

- J. Gregory. *Game Engine Architecture*, ed. A. K. Peters/CRC Press, 2009
- D. H. Eberly, *3D Game Engine Design. A Practical Approach to Real-Time Computer Graphics*, 2a ed., CRC Press, 2007
- T. Akenine-Moller, *Real Time Rendering*, 3a ed., CRC Press, 1997.

#### Web

- Material docente del Curso de Experto en Desarrollo de Videojuegos (UCLM), <http://www.cursodesarrollovideojuegos.com/>

#### Videografía (\* interesante, \*\* muy interesante, \*\*\* imprescindible)

- Películas:
  - "Tron" (1982) \*\*\*
  - "Juegos de Guerra" (1983) \*\*\*
  - "Pesadillas; 3ª historia: The Bishop of Battle" (1983) \*\*
  - "Starfighter: La Aventura comienza" (The Last Starfighter, 1984) \*
  - "El campeón del videojuego" (The Wizard, 1989) \*
  - "Juego mortal" (Brainscan, 1994) \*
  - "eXistenZ" (1999) \*\*
  - "Avalon" (2001) \*\*
  - "Stay Alive" (2006) \*\*
  - "Gamer" (2009) \*
  - "Tron: Legacy" (2010) \*\*

- "Scott Pilgrim contra el mundo" (2010) \*\*
- "Rompe Ralph!" (2013) \*\*\*
- "Pixels" (2015) \*\*
- Documentales:
  - "True Life: I'm a Gamer" (MTV, 2003)
  - "Just a Game" (2004) \*\*
  - "Tetris, desde Rusia con amor" (BBC, 2004) \*\*\*
  - "The King of Kong: A Fistful of Quarters" (2007) \*\*\*
  - "Chasing Ghosts: Beyond the Arcade" (2007)
  - "Sudor, sangre y videojuegos" (2007) \*\*\*
    - Parte I: Poder sobre el mundo
    - Parte II: Poder sobre la mente
  - "La puerta de Sinclair" (Akton Films, 2007) \*
  - "Hobby" (Ciro Altabás, 2008) \*
  - "Indie Game: The Movie" (2012)
  - "Ecstasy of Order The Tetris Masters" (2012) \*\*\*
  - "How Videogames Changed the World" (Channel 4, 2013)