UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Course guide
804479 - PBL3M - Project III: Video Games

Unit in charge:	Image Processing and Multimedia Technology Centre
Teaching unit:	804 - CITM - Image Processing and Multimedia Technology Centre.

Degree:	BACHELOR'S DEGREE IN DIGITAL DESIGN AND MULTIMEDIA TECHNOLOGIES (Syllabus 2023). (Compulsory subject).

Academic year: 2024   **ECTS Credits:** 6.0   **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer:	Serrano Recuero, Josep
	Martín Mínguez, Mónica

Others:

TEACHING METHODOLOGY

Project-based learning. The following activities will be carried out during the class sessions:
- Sprint review: Each week half of the groups present their progress. Each student explains what he/she has done
and a check is made to see if they have arrived at the agreed point.
- Explanation of content by the teacher.
- Work in class and resolution of doubts: The groups work in class and ask questions about programming and design.
Part of the work is carried out during class, and in this case the work is guided and supervised by the teacher. Another part
is developed in teams, either during class hours or during hours of autonomous work. Finally, another part is individual work
individual work for subsequent sharing.
-Group tutoring, explanation of the materials provided and work plan.
-Autonomous work.
Students work autonomously, outside class hours, studying, reading, solving exercises or problems,
developing practices.
-Writing of reports, public presentation and defence of the conclusions drawn and performance of assessment tests.

LEARNING OBJECTIVES OF THE SUBJECT

Knowledge
Identify basic concepts related to organisations.

Skills
Design and develop different digital and multimedia design projects, covering areas as diverse as user-centred design, an advertising
project and video games.

Competences
Recognise management methodologies, with emphasis on agile methodologies and their application in the design and development of
digital products, and use software tools for project management in the context of multimedia project development.
Identify the importance of negotiation, effective work habits, leadership and communication skills in all software development
environments.
Apply instruments and techniques, both for the generation of ideas and management, that allow for the resolution of known problems
and the generation of opportunities in the multimedia field.
Take initiatives that generate opportunities, new objects or solutions, with a vision of process and market implementation, and that
involve and involve others in the multimedia projects to be developed.
Use knowledge and strategic skills for the creation and management of projects, apply systemic solutions to complex problems and
design and manage innovation in an organisation.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	18,0	12.00
Hours large group	30,0	20.00
Guided activities	12,0	8.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

Part 1: Game Design

Description:
Game Design
1. Introduction to Game Design
- What is Game Design and Game Designer? Objective, introduction to GDD
- Game Concept, Formal Elements, Dramatic Elements, MDA
2. Design Concepts
- Decision Making, Loops and Arcs
- Game Balance, Content Delivery + Narrative
3. Design Process
- Idea Generation, Linear Design VS Iterative Process,
- Rapid Prototyping, Testing
4. Introduction to Level Design
- User acquisition and retention
- Puzzle creation, authoring tools, Procedural Design

Related activities:
Planning and design

Full-or-part-time: 37h 30m
Practical classes: 15h
Self study : 22h 30m

3D Modelling, Animation and Texturing

Description:
1. Low-poly modelling for real-time applications
2. UV coordinates (Unwrap). Detail creation and use of normal maps
3. Character animations
a. Motion capture
b. Exports.
4. Lighting-Texturisation
a. Creation of special maps
b. Texture burning
c. Lightmapping

Related activities:
Development of a project report

Full-or-part-time: 37h 30m
Practical classes: 15h
Self study : 22h 30m

Part 3: Development and programming

Description:
1. Importing art
- Objects and scenery.
- Characters and animations.
- GUI.
- Sound.
2. Prototype implementation
- Control of the main character.
- Interaction through physical components.
- GUI update.
- AI control.
- Animation control.
- Camera control.
- Sound control.

Related activities:
Alpha and Final Delivery

Full-or-part-time: 37h 30m
Theory classes: 22h 30m
Practical classes: 15h

Part 4: Project Management

Description:
Project management.
Project management software.
Conflict management.

Specific objectives:
Understand the concepts and principles of multimedia project management.
Know the development phases of a multimedia project, the activities, tasks and documents generated in each phase.
Correctly choose the tools and procedures necessary for the development of projects.
Draft the report of the project developed.
Participate in team work and collaborate, once the collective and individual objectives and responsibilities have been indicated, and jointly decide on the strategy to be followed.
jointly decide on the strategy to be followed.
After identifying the different parts of an academic document and organising the bibliographic references, design and execute a good advanced
and implement a good advanced search strategy using specialised information resources, selecting the relevant information taking into account
relevant information taking into account relevance and quality criteria.

Related activities:
Final delivery (part of the report)

Full-or-part-time: 37h 30m
Practical classes: 15h
Self study : 22h 30m

GRADING SYSTEM

1- Planning and design: 20%
2- Creation of an Alpha prototype: 20%
3a- Final delivery: 40%
3b- Presentation: 10%
Attitude and participation: 10%

Irregular actions that may lead to a significant variation in the grade of one or more students constitute a fraudulent performance of an evaluation act. This action will lead to a descriptive grade of fail and a numerical grade of 0 for the ordinary global assessment of the subject, without the right to re-evaluation.

If the teachers have evidence of the use of AI tools that are not permitted in the assessment tests, they may summon the students involved to an oral test or a meeting to verify the authorship.

BIBLIOGRAPHY

Basic:
- Rabin, Steve. Introduction to game development. Hingham: Charles River Media, 2008. ISBN 9781584503774.
- Thompson, J.; Berbank-Green, B.; Cusworth, N.. The computer game design course: principles, practices and techniques for the aspiring game designer. London: Thames & Hudson, 2007. ISBN 9780500286586.
- DeMaria, R.; Wilson, J.L.. High score: la historia ilustrada de los videojuegos.. Madrid: McGraw-Hill, 2002. ISBN 9788448137045.
- González, Daniel. Diseño de videojuegos: da forma a tus sueños. Madrid: RA-MA, 2011. ISBN 9788499640785.
- Martínez, David. De Super Mario a Lara Croft: la historia oculta de los videojuegos. Palma de Mallorca: Dolmen, 2004. ISBN 8496121518.

RESOURCES

Other resources:
www.gamasutra.com
www.gamecareerguide.com
www.gamesindustry.com
www.meristation.com
www.unity3d.com