UFV
Teaching guide

IDENTIFICATION DETAILS

Degree:	Diploma Technical Artist (UFV-Awarded Title associated with the Video Game Creation)

Field of Knowledge:	Social and Legal Science

Faculty/School:	Communication Science

Course:	3D MODELLING AND RIGGING

Type:	Compulsory Internal	ECTS credits:	6

Year:	2	Code:	46113

Teaching period:	Fourth semester

Teaching type:	Classroom-based

Language:	English

Total number of student study hours:	150

Teaching staff	E-mail
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SUBJECT DESCRIPTION

This Subject is divided in two independent parts:

Part 1 Creating 3d content for Mobile, (Represents 75% of the subject)
This part develops the techniques and strategies to create the high quality 3D art & animations needed in a Low-performance Device Game, and Is fully related to the other subjects of art as "Introducción a la Imagen Digital", "Representación Conceptual"," animación interactiva" and "Introduccion al Diseño 3D".

Part 2 Introduction to Rigging, (Represents 25% of the subject).
In this part will be a concise and dedicated exploration of some forms and great utility of scripting for the rigg of characters and elements to improve the production of video games .

GOAL

The student can create High-Quality Low-poly Models and Textures for Low-End Devices.

The specific aims of the subject are:

To make known to the student the techniques and strategies of creation optimized 3D Art & Animations for low performance platforms.

To make known to the student the techniques and strategies to create and develop rigging set for his own models and scenes.

The student will be able of create 3D content for low-end devices dealing with limitations of memory and performance.

The student will be able of optimize 3D content from high detailed project assets to match the needs of a low-end device project

PRIOR KNOWLEDGE

Some of the knowledge that contribute the subjects of Art, Animation and Management of engines:
- Introducción a la Imagen Digital
- Representación Conceptual
- Introducción al modelado, concept y animación 2D
- Fundamentos de la Programación Básica en Videojuegos
- Animación Interactiva

Necessary background knowledge:
- Knowledge of 3D content creation

COURSE SYLLABUS

1. OPTIMIZE GAME PERFORMANCE.(Creating Assets)

 a) Rendering engine work & optimization.

b) Mesh Creation.
    b.1 Polygon counts
    b.2 Mesh import setting
    b.3 Optimize model techniques. (High Poly model and Low poly model, retopology tools)

c) Optimize UVs layout creation.
    c.1 Tools for unwrapping UVs
    c.2 Layout UVs for mobile games.

d)Texture Creation.
    d.1 Import and setup textures. (Atlas and Tilling)
    d.2 Texture Compression
    d.3 Baking Details.
       Baking lights and shadows
       Baking Normals
e) Optimize the scene.
    e.1 LODs
    e.2 Oclussion Culling

2. FUNDAMENTALS OF RIGGING

a) Rigging basics.
    a.1. Controllers and hierarchy
    a.2 Bones
    a.3 Inverse kinematic (IK handles)

b) Setup a rig.
    b.1 Creating a rig for mechanical objects.
    b.2 Optimize rigs for mobile games

EDUCATION ACTIVITIES

FLIPPED CLASSROOM: Unlike the classical masterclass, in his method the teacher gives the essential material (Videos and lesson notes) to understand the basic concepts and to develop the main strategies, that gives the students the standard workflows, there are going to need in the future.
AUTONOMOUS WORK. In this methodology, the student takes the initiative with or without the help of others (teachers,
Companions, tutors, mentors). It is the student who diagnoses their learning needs, formulates their
Learning goals, identify the resources it needs to learn, choose and implement
Learning and assesses the results of their learning. The teacher thus becomes the guide, the
Facilitator and in a source of information that collaborates in that autonomous work. This methodology will
Special interest in the development of research-related skills
COLLABORATIVE LEARNING is a method of teaching and learning in which the student's team together to

explore a significant question or create something. In this case, the students team up in different groups to develop a collaborative project together as if they were working in the game studio.

COOPERATIVE LEARNING is a specific kind of collaborative learning. In cooperative learning, students work together in small groups on a structured activity. They are individually accountable for their work, and the work of the group as a whole is also assessed. Cooperative groups work face-to-face and learn to work as a team.

TUTORIAL ACTION SYSTEM: which includes interviews, discussion groups, self-reports and

Follow-up tutorial. RESEARCH: Search of information from various sources and documents,

Analysis and synthesis of data and development of conclusions.

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DISTRIBUTION OF WORK TIME

CLASSROOM-BASED ACTIVITY	INDEPENDENT STUDY/OUT-OF-CLASSROOM ACTIVITY
60 hours	90 hours
COLLABORATIVE EXERCISES 40h COOPERATIVE EXERCISE 20h	COOPERATIVE EXERCISE 40h AUTONOMOUS WORK 20h FLIPPED CLASSROOM 30h

SKILLS

Ability to model optimized 3D objects

Ability to rig optimized 3D objects

Ability to texture optimized 3D objects

LEARNING RESULTS

The student can create High-Quality Low-poly Models and Textures for Low-End Devices. The student can optimize High-Poly Assets so they can be used in a Low-end Device Project.
The student can apply different techniques to develop rigging sets, for any kind of model, cameras, and Lights.

LEARNING APPRAISAL SYSTEM

The regular evaluation will be done by the continuous assessment system.

And you must comply with the following:

Students must obtain a minimum of 5 in all qualification elements in order to pass.

Assistance must not be less than 80%.

ORDINARY EVALUATION Qualification elements:

Collaborative exercises 30%

Cooperative Work (Project) 50%

Assistance and laboratory work 20 %

EXTRAORDINARY EVALUATION:

Final global exam or exercise 100%

Plagiarism behaviors, as well as the use of illegitimate tools in the evaluation tests, will be sanctioned in accordance with those established in the University's Evaluation Regulations and Coexistence Regulations

BIBLIOGRAPHY AND OTHER RESOURCES

Basic

McDermott W. Creating 3D Game Art for the Iphone with Unity Focal Press 2010

Dickinson, C. Unity 2017 Game Optimization Second Edition. Packt