

Course Unit	3D Animation		Field of study	Visual Arts/Computing Science	
Bachelor in	Game Design		School	School of Public Management, Communication and Tourism	
Academic Year	2017/2018	Year of study	2	Level	1-2
Type	Semestral	Semester	2	ECTS credits	6.0
Code	8309-414-2201-00-17				
Workload (hours)	162	Contact hours	T -	TP 15	PL 45
			TC -	S -	E -
			OT -	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Jose Pedro Loureiro de Azevedo Teixeira

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Acquire advanced knowledge of 3D animation software (Blender 3D and Maya);
2. Develop creative capacities for the integration of previous modeling (3D Design, Digital Architecture and designing characters) in 3D animations;
3. Understanding the fundamental concepts of animation.
4. Understanding the building mechanisms of a complete character Rig.
5. Understanding the placement and the importance of animation In a Game Production.
6. Acquire advanced knowledge of the methods and techniques used by the game industry.

Prerequisites

Before the course unit the learner is expected to be able to:

1. Use basic tools in 3d software (Blender).
2. Understand the basic concepts of traditional animation.

Course contents

Exhaustion of the basic golden rules of animation developed in the beginning of the twentieth century with traditional animation. Basic and advanced 3D animation techniques in Blender and Maya. Understanding the value and status of 3D Animation in the gaming industry. Animation Practice.

Course contents (extended version)

1. Introduction to 3d animation for video games
 - Difference between other types of animation and 3d animation for games
 - History of 3d animation in games
 - Importance of modeling in 3d animation for games
 - Difference between creativity, technique and expression in 3d animation
2. Simple and advanced techniques of 3D animation in Blender:
 - Understanding keyframe animation
 - Relationship between objects and hierarchies
 - Simple object animations(move, rotate, scale, visibility)
 - Animating with an advanced character Rigs.
 - Construct complex rigs using constraints, drivers and modifiers
 - Expressive animation using shape keys

Recommended reading

1. Parent, R. (2012). Computer animation algorithms and techniques. San Francisco, Calif: Morgan Kaufmann. [ISBN: 0124158420]
2. Hess, R. (2010). Blender foundations the essential guide to learning Blender 2. 6. Burlington, MA: Elsevier. [ISBN: 0240814304]
3. Hess, R. (2013). Blender production : creating short animations from start to finish. Burlington, MA: Focal Press. [ISBN: 0240821459]
4. Wartmann, C. & Kauppi, M. (2009). The Blender gamekit. Amsterdam San Francisco, CA: Blender Foundation Distributed by No Starch Press. [ISBN: 1593272057]
5. Williams, R. (2009). The animator's survival kit. New York: Faber and Faber. [ISBN: 0865478978]

Teaching and learning methods

Content exposition, in structured transmission knowledge; Interrogative method, asking the students systematically in order to develop critical capacity; Demonstrative method with practical application by students; Active method, solving exercises in order to allow greater consolidation of knowledge.

Assessment methods

- DISTRIBUTED EVALUATION: minimum 9.5/20 each module - (Regular, Student Worker) (Final, Supplementary, Special)
- Practical Work - 5% (Animating a Bouncing ball)
- Practical Work - 15% (Giving life to a basic primitive shape (circle) using the learnt animation theory.)
- Practical Work - 20% (Animating a tale reacting to the movement of a basic primitive (forward kinematics))
- Projects - 60% (Animating a series of loop cycles for a character, ready to include on a gaming engine.)

Language of instruction

1. Portuguese
2. English

Electronic validation

Jose Pedro Loureiro de Azevedo Teixeira	João Paulo Pereira de Sousa	Aida Maria Oliveira Carvalho	Luisa Margarida Barata Lopes
30-05-2018	30-05-2018	30-05-2018	11-06-2018