Course guide
804248 - A3D - 3D Animation

Last modified: 04/09/2023

Unit in charge:	Image Processing and Multimedia Technology Centre
Teaching unit:	804 - CITM - Image Processing and Multimedia Technology Centre.
Degree:	BACHELOR'S DEGREE IN VIDEO GAME DESIGN AND DEVELOPMENT (Syllabus 2014). (Compulsory subject).

Academic year: 2023   **ECTS Credits:** 6.0   **Languages:** Catalan, English

LECTURER

Coordinating lecturer:	Ripoll, Marc
Others:	Ripoll, Marc
	Jesús, Pavel

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEVJ 9. Apply advanced modelling and animation, post-production and special effects techniques to the creation of digital content and/or its inclusion in a video game project.
CEVJ 8. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.

Transversal:
05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
04 COE N3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

TEACHING METHODOLOGY

Learning of new contents through theory, references and practical examples.
Participative classroom where to resolve problems and discuss contents.
Practical exercices to apply and experiment with the contents of the course. They will be used to work during the week and improve the skills to master the 3d dessign tools and techniques.

LEARNING OBJECTIVES OF THE SUBJECT

To understand the theory of animation.
To plan animations adapting to every possible mechanic, aesthetic and narrative combinations.
To understand the work methodology used by professional videogame studios and analyze the importance of teamwork.
Know the most important techniques in 3d animation.
To use the subject learning to create professional high quality character animations.
Represent character emotion through facial expressions and vocalization.
To do the exercices proposed in class applying the correct structure, presentation and planification and maintaining a good orthographic and grammatical level.

STUDY LOAD

Type	Hours	Percentage
Hours large group	18,0	12.00
Guided activities	10,0	6.67
Hours medium group	32,0	21.33
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

Animation

Description:
Animation concepts
Playback speed
Keyframes
Animation curves

Related competencies :
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Full-or-part-time: 26h
Theory classes: 3h
Practical classes: 7h
Guided activities: 1h
Self study : 15h

Rigging and Skinning

Description:
Setup
Joints
Inverse kinematics
Skinning

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Full-or-part-time: 41h 20m
Theory classes: 5h
Practical classes: 8h 20m
Guided activities: 3h
Self study : 25h

Character animation

Description:
References and acting
Animation concepts with characters
Motion capture
Facial animation

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Guided activities: 3h
Self study : 25h

Techniques

Description:
Retargeting
Scripting
Physics
Non Linear animation

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Theory classes: 5h
Practical classes: 8h 20m
Guided activities: 3h
Self study : 25h

ACTIVITIES

Exercice 1

Description:
To create a functional rig for a character and adjust the skin until getting a ready to animate character.

Specific objectives:
To practice and better understand the rigging tools and techniques applied to characters.

Material:
Autodesk Maya

Delivery:
The exercice will be uploaded to an Àgora folder specified by the professor and saved as a Maya scene with the full name of the student.

Related competencies :
CEVJ 8. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
CEVJ 9. Apply advanced modelling and animation, post-production and special effects techniques to the creation of digital content and/or its inclusion in a video game project.
CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.
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Full-or-part-time: 10h
Self study: 10h

Exercice 2

Description:
Design the animations of a character and create the basic poses for the integration into a videogames.

Specific objectives:
To animate a character, dessigning his actions.

Material:
Autodesk Maya

Delivery:
The exercice will be uploaded to an Àgora folder specified by the professor and saved as a Maya scene with the full name of the student.

Related competencies :
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CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.
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Full-or-part-time: 20h
Guided activities: 5h
Self study: 15h

GRADING SYSTEM

2 exercices
1 practice with a percentage of 15% of the final evaluation.
1 practice with a percentage of 30% of the final evaluation.

1 midterm exam with a percentage of 15% from the final evaluation.

1 final exam with a percentage of 30% from the final evaluation.

Learning attitude and learning: 10% of the final evaluation.

Revaluation exam: possibility to access the revaluation exam to revaluate the two previous exams (45% of the final evaluation). Only students that didn't pass the course can access the revaluation exam.

EXAMINATION RULES.

Some of the exercices can be worked in classroom with professors, however, students must work in an autonomous way to finish their exercices. They should follow the instructions given in the exercice document.

BIBLIOGRAPHY

Basic:

- Williams, Richard. The animator's survival kit. Expanded ed. London: Faber and Faber, 2009. ISBN 9780571238347.
- Thomas, F.; Johnston, O. The illusion of life: Disney animation. New York: Hyperion, 1995. ISBN 0786860707.
- Osipa, J. Stop staring: facial modeling and animation done right. 2nd ed. Indianapolis: Wiley, 2007. ISBN 9780471789208.
- Luhta, E.; Roy, K. How to cheat in Maya 2012: tools and techniques for character animation. Waltham, MA: Focal Press, 2011. ISBN 9780240816982.

Complementary:

- Jones, A.; Oliff, J. Thinking animation: bridging the gap between 2D and CG. Boston, MA: Course Technology, 2008. ISBN 9781598632606.
- Hooks, Ed. Acting for animators. London: Routledge, 2011. ISBN 9780415580236.

RESOURCES

Hyperlink:

- www.digitaltutors.com. Resource
- www.thegnomonworkshop.com. Resource
- http://area.autodesk.com. Resource
- http://www.cgsociety.org/. Resource