

## 804338 - A3D-A - 3D Animation

Coordinating unit:	804 - CITM - Image Processing and Multimedia Technology Centre		
Teaching unit:	804 - CITM - Image Processing and Multimedia Technology Centre		
Academic year:	2019		
Degree:	BACHELOR'S DEGREE IN DESIGN, ANIMATION AND DIGITAL ART (Syllabus 2017). (Teaching unit Compulsory)		
ECTS credits:	6	Teaching languages:	Catalan, Spanish

### Teaching staff

Coordinator: Fonts González, Elisabet

### Degree competences to which the subject contributes

Specific:

CEAAD 3. (ENG) Dominar el gran abanico de herramientas profesionales del sector para la elaboración de contenidos digitales de todo tipo.

CEAAD 6. (ENG) Dissenyar, modelar, texturitzar i animar objectes, personatges i escenes 2D i 3D per a la seva inclusió en projectes digitals, seqüències audiovisuals i videojocs.

Transversal:

04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.

06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

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 exercises 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 design and animation tools.

### Learning objectives of the subject

- Mostrar comprensión de los conceptos básicos y de los procedimientos implicados en la animación 2D y 3D, así como de los fundamentos matemáticos y físicos.
- Mostrar capacidad de análisis del movimiento en objetos, seres humanos y animales y capacidad de aplicar las técnicas de animación por ordenador y sus fundamentos matemáticos y físicos en animación 2D y 3D.
- Mostrar conocimiento y dominio de los procedimientos, de las técnicas, de las tecnologías y de los programas informáticos gráficos y capacidad para seleccionar el más adecuado en cada caso y para aplicarlos, en el proceso de composición y animación de objetos y personajes 2D y 3D en la creación de secuencias audiovisuales y videojuegos.
- Mostrar conocimiento de las fases de creación de una película 2D o 3D y capacidad para planificar el proceso.
- Aplicar recursos de audio.
- Analizar las técnicas utilizadas en los diferentes tipos de producciones audiovisuales para aplicarlas posteriormente mediante el uso de software.

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### Study load

Total learning time: 150h	Hours large group:	18h	12.00%
	Hours medium group:	26h	17.33%
	Hours small group:	0h	0.00%
	Guided activities:	16h	10.67%
	Self study:	90h	60.00%

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### Content

<p>Bloque 1 - Fundamentos de la animación</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Guided activities: 3h Self study : 3h</p>
<p>Description: Qué significa la animación Ser actor Observar Vídeo referencias</p>	
<p>Conociendo Maya</p>	<p>Learning time: 20h Theory classes: 4h Practical classes: 4h Guided activities: 6h Self study : 6h</p>
<p>Description: Interface Configuración Programación del teclado Keys Cámaras Trabajar con más pantallas Graph Editor Figuras básicas Herramientas para crear el usuario Playblast</p>	

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<p>Los principios de la animación</p>	<p>Learning time: 20h Theory classes: 4h Practical classes: 4h Guided activities: 6h Self study : 6h</p>
<p>Description: Timing Squash &amp; Stretch Slow in, slow out Anticipación Overlap Arcs Pose Acción secundaria Exageración Appeal</p>	
<p>Primera fase de creación de un plano</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Guided activities: 3h Self study : 3h</p>
<p>Description: Observación Vídeo referencia La pose en la animación Cámara y la pose</p>	
<p>Principio del ritmo del movimiento</p>	<p>Learning time: 20h Theory classes: 4h Practical classes: 4h Guided activities: 6h Self study : 6h</p>
<p>Description: Timing Anticipación Animando con Squatch y Stretch Animando y dando vida a una pelota</p>	

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<p>Bloque 2 - Fundamentos de la locomoción humana</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Guided activities: 3h Self study : 3h</p>
<p>Description: Overlapping Action Drag Breakdown Principios Wave El principio del Overlap Conceptos: peso, inercia, gravedad, momentum, aceleración, desaceleración, física</p>	
<p>Introducción al caminar</p>	<p>Learning time: 20h Theory classes: 4h Practical classes: 4h Guided activities: 6h Self study : 6h</p>
<p>Description: Planificación Balance Línea central Ángulo Blocking Polishing Sector inferior Análisis del caminar Pops y spacing</p>	

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<p>Caminar avanzado</p>	<p>Learning time: 20h Theory classes: 4h Practical classes: 4h Guided activities: 6h Self study : 6h</p>
<p>Description: Características del personaje Estado de ánimo del personaje Biomecánica. Sector Superior y personalidad Manos Animación física y metodología Centro de gravedad Appeal Workflow</p>	
<p>Dibujo animado: Relación con la Animación 3D</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Guided activities: 3h Self study : 3h</p>
<p>Description: Dibujo en programas 3D Dibujo animado, 3D spacing e intermedios Consejos de cámara y estilos de planos Moving Holds Overshoot Breakdowns Composición visual Dark side IK/FK Línea de acción</p>	
<p>Actuación y Pantomima</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Guided activities: 3h Self study : 3h</p>
<p>Description: Personaje y escena Definición del personaje Objetivos del personaje</p>	



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### Planning of activities

Activity AA1	Hours: 10h Self study: 10h
<p>Description:</p> <p>Apply the basic principles of animation:</p> <ul style="list-style-type: none"> <li>- Work with weights on balls of different types</li> <li>- Composition of a pose: Mood (sadness, joy, downplay, angry / da ...) of a personage provided</li> <li>- Draw a short animated story with a character performing an action</li> </ul>	
Activity AA2	Hours: 10h Guided activities: 10h
<p>Description:</p> <p>From a storyboard, develop two short animations using two different characters.</p>	
Activity AA3	Hours: 10h Self study: 10h
<p>Description:</p> <p>Implement an animation so that a character can walk smoothly.</p>	
Activity AA4	Hours: 10h Self study: 10h
<p>Description:</p> <p>Realization of animations to work with the corporal expression by the movement of the body and hands.</p>	
Activity AA5	Hours: 10h Theory classes: 10h
<p>Description:</p> <p>Develop an animation for an action scene to apply different body mechanics.</p>	
Activity AA6	Hours: 22h Guided activities: 2h Self study: 20h
<p>Description:</p> <p>Development of a videoreel. It has to include:</p> <ul style="list-style-type: none"> <li>- a collection of the practices carried out, incorporating the improvements specified by the teacher's review</li> <li>- an additional ad-hoc animation</li> </ul>	



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### Qualification system

Practices: 5 practices (AA1 to AA5) with a weighting of 10% of the final grade of each subject.

Control: 1 Partial Exam with a weighting of 15% of the final mark of the subject.

Final project: 1 final project (Activity AA6) with a weighting of 25% of the final mark of the subject.

Participation and attitude of learning: 10% of the mark of the subject.

Revaluation exam: possibility to reevaluate the weightings of the final mark corresponding to the partial exam (15%). Students who have not passed the subject can only present themselves through continuous evaluation.

### Regulations for carrying out activities

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

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### Bibliography

#### Basic:

- Williams, Richard. The animator's survival kit. Expanded ed. London: Faber and Faber, 2009. ISBN 9780571238347.
- Whitaker, H.; Halas, J.; Sito, T. Timing for animation. 2nd ed. Oxford: Focal Press, 2009. ISBN 9780240521602.
- 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.
- Docter, Pete. Walt Disney Animation Studios: Walt Diney' s nine old men. Hachette, 2013. ISBN 9781423151050.
- Deja, Andreas. The nine old men: lessons, techiques and inspiration from Disney' s great animators. 2015.

#### Complementary:

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

#### Others resources:

##### Hyperlink

[www.thegnomonworkshop.com](http://www.thegnomonworkshop.com)

Resource

[www.digitaltutors.com](http://www.digitaltutors.com)

Resource

<http://area.autodesk.com>

Resource

<http://www.cgsociety.org/>

Resource