Course guide
804338 - A3D-A - 3D Animation

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

Degree: BACHELOR'S DEGREE IN DESIGN, ANIMATION AND DIGITAL ART (Syllabus 2017). (Compulsory subject).
Academic year: 2022  ECTS Credits: 6.0  Languages: Catalan

LECTURER
Coordinating lecturer: Fonts González, Elisabet

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEAAD 3. Master the wide range of professional tools in the sector for developing all kinds of digital content.
CEAAD 6. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.

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 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 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.
STUDY LOAD

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<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<td>Hours medium group</td>
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<td>Hours large group</td>
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<td>Guided activities</td>
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</tr>
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</table>

Total learning time: 150 h

CONTENTS

Bloque 1 - Fundamentos de la animación

Description:
- Qué significa la animación
- Ser actor
- Observar
- Video referencias

Full-or-part-time: 10h
- Theory classes: 2h
- Practical classes: 2h
- Guided activities: 3h
- Self study: 3h

Conociendo Maya

Description:
- Interface
- Configuración
- Programación del teclado
- Keys
- Cámaras
- Trabajar con más pantallas
- Graph Editor
- Figuras básicas
- Herramientas para crear el usuario
- Playblast

Full-or-part-time: 20h
- Theory classes: 4h
- Practical classes: 4h
- Guided activities: 6h
- Self study: 6h
Los principios de la animación

Description:
Timing
Squash & Stretch
Slow in, slow out
Anticipación
Overlap
Arco
Pose
Acción secundaria
Exageración
Appeal

Full-or-part-time: 20h
Theory classes: 4h
Practical classes: 4h
Guided activities: 6h
Self study: 6h

Primera fase de creación de un plano

Description:
Observación
Vídeo referencia
La pose en la animación
Cámara y la pose

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Guided activities: 3h
Self study: 3h

Principio del ritmo del movimiento

Description:
Timing
Anticipación
Animando con Squatch y Stretch
Animando y dando vida a una pelota

Full-or-part-time: 20h
Theory classes: 4h
Practical classes: 4h
Guided activities: 6h
Self study: 6h
### Bloque 2 - Fundamentos de la locomoción humana

**Description:**
- Overlapping Action
- Drag
- Breakdown
- Principios Wave
- El principio del Overlap
- Conceptos: peso, inercia, gravedad, momentum, aceleración, desaceleración, física

**Full-or-part-time:** 10h
- Theory classes: 2h
- Practical classes: 2h
- Guided activities: 3h
- Self study: 3h

### Introducción al caminar

**Description:**
- Planificación
- Balance
- Línea central
- Ángulo
- Blocking
- Polishing
- Sector inferior
- Análisis del caminar
- Pops y spacing

**Full-or-part-time:** 20h
- Theory classes: 4h
- Practical classes: 4h
- Guided activities: 6h
- Self study: 6h

### Caminar avanzado

**Description:**
- Características del personaje
- Estado de ánimo del personaje
- Biomecánica. Sector Superior y personalidad
- Manos
- Animación física y metodología
- Centro de gravedad
- Appeal
- Workflow

**Full-or-part-time:** 20h
- Theory classes: 4h
- Practical classes: 4h
- Guided activities: 6h
- Self study: 6h
**Dibujo animado: Relación con la Animación 3D**

**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

**Full-or-part-time:** 10h
- Theory classes: 2h
- Practical classes: 2h
- Guided activities: 3h
- Self study: 3h

**Actuación y Pantomima**

**Description:**
- Personaje y escena
- Definición del personaje
- Objetivos del personaje

**Full-or-part-time:** 10h
- Theory classes: 2h
- Practical classes: 2h
- Guided activities: 3h
- Self study: 3h

**ACTIVITIES**

**Activity AA1**

**Description:**
- Apply the basic principles of animation:
  - Work with weights on balls of different types
  - Composition of a pose: Mood (sadness, joy, downplay, angry / da ...) of a personage provided
  - Draw a short animated story with a character performing an action

**Related competencies:**
- CEAAD 3. Master the wide range of professional tools in the sector for developing all kinds of digital content.
- 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.
- 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.

**Full-or-part-time:** 10h
- Self study: 10h
### Activity AA2

**Description:**
From a storyboard, develop two short animations using two different characters.

**Related competencies:**
- CEAAD 6. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
- CEAAD 3. Master the wide range of professional tools in the sector for developing all kinds of digital content.
- 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.

**Full-or-part-time:** 10h  
Guided activities: 10h

### Activity AA3

**Description:**
Implement an animation so that a character can walk smoothly.

**Related competencies:**
- CEAAD 3. 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

### Activity AA4

**Description:**
Realization of animations to work with the corporal expression by the movement of the body and hands.

**Related competencies:**
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**Full-or-part-time:** 10h  
Self study: 10h
Activity AA5

Description:
Develop an animation for an action scene to apply different body mechanics.

Related competencies:
CEAAD 6. Design, model, texture and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
CEAAD 3. Master the wide range of professional tools in the sector for developing all kinds of digital content.
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.
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Full-or-part-time: 10h
Theory classes: 10h

Activity AA6

Description:
Development of a videoreel. It has to include:
- a collection of the practices carried out, incorporating the improvements specified by the teacher’s review
- an additional ad-hoc animation

Related competencies:
CEAAD 6. Design, model, texture and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
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Full-or-part-time: 22h
Guided activities: 2h
Self study: 20h

GRADING 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.

EXAMINATION RULES.

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.
BIBLIOGRAPHY

Basic:
- Deja, Andreas. The nine old men: lessons, techniques and inspiration from Disney’s great animators. 2015.

Complementary:

RESOURCES

Hyperlink: