

804334 - E3D-A - 3D Scenarios

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:	Àvila Casademont, Genís
Others:	Ripoll Tarré, Marc

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.

CEAAD 10. (ENG) Identificar el procés de direcció i producció dels diferents projectes artístics de l'àmbit digital, les metodologies existents, els rols implicats i les seves funcions.

Transversal:

02 SCS N2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 2. Applying sustainability criteria and professional codes of conduct in the design and assessment of technological solutions.

04 COE N2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.

05 TEQ N2. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

06 URI N2. EFFECTIVE USE OF INFORMATION RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.

07 AAT N2. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.

Learning objectives of the subject

- Mostrar capacidad para analizar e interpretar correctamente planos de espacios, instalaciones y objetos.
- Mostrar capacidad para diseñar, modelar, texturizar, iluminar y renderizar escenarios 3D, para interactuar con objetos o

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personajes virtuales.

- Mostrar conocimiento y saber aplicar conceptos relativos al control de la visualización de objetos y escenas mediante visores y cámaras sintéticas y, las técnicas de iluminación a escenarios, recreando ambientes reales o imaginarios.

Study load

Total learning time: 150h	Hours large group:	24h	16.00%
	Hours medium group:	22h	14.67%
	Hours small group:	0h	0.00%
	Guided activities:	14h	9.33%
	Self study:	90h	60.00%

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Content

<p>Game Design</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Basic concepts Mechanics vs themes Rewards and challenges Fun</p>	
<p>Level design</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Planning and preproduction Objectives, obstacles and progression Game flow Map layout Game mechanics Player experience Storytelling</p>	
<p>Architecture and visualization</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Urbanism and Territory Architectural proportions Historical periods Projection systems Perspective and camera</p>	

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Creation of 3D assets	Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h
Description: Asset design Carving Retopology Map extraction	
Texturing 3D assets	Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h
Description: Shading techniques PBR Realistic texture	
Photogrammetry	Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h
Description: Concept of photogrammetry Scan 3D objects	
3D engine	Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h
Description: Level edit. Unity 3d. Real-time render.	

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<p>Exteriors</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Level Design of exteriors Terrains and landscapes Vegetation and billboards Atmosphere and effects</p>	
<p>Interiors</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Level Design of interiors Modularity Collision model Creating atmospheres</p>	
<p>3D Lighting</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Shaders Dinamic lightingh Direct and indirect illumination Light baking</p>	

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<p>Lightmaps</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Lightmaps Lightprobes Ambient occlusion</p>	
<p>Scenarios and Virtual Reality</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Virtual reality Augmented reality Space and proportions VR</p>	
<p>Optimization and rendering</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Optimizations Export Render engine Postprocessing</p>	
<p>Scenarios for Postproduction</p>	<p>Learning time: 10h Theory classes: 2h Practical classes: 2h Self study : 6h</p>
<p>Description: Real space vs. virtual space Importance of the storyboard Integration of digital elements</p>	

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Planning of activities

Scene design	Hours: 12h Self study: 12h
Scene production	Hours: 32h Self study: 12h Guided activities: 20h
Description: Create a 3D scenario for a functional level of video game or for an animated sequence of an audiovisual production	

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Bibliography

Basic:

- Sjoerd "Hourences" de Jong. The hows and whys of level design. [Belgium]; [Morrisville]: Sjoerd de Jong: Lulu.com, 2006.
- Kremers, R. Level design: concept, theory, and practice. Wellesley, MA: A.K. Peters, 2009. ISBN 9781568813387.
- Birn, J. Digital lighting and rendering. 3rd ed. Berkeley, CA: New Riders, 2014. ISBN 0321928989.

Complementary:

- Demers, O. Digital texturing and painting. [S.I.]: New Riders, 2002. ISBN 0735709181.
- Kerr, N. Techniques of photographic lighting. New York: American Photographic Book Publishing, 1982. ISBN 0817460241.
- Brown, B. Cinematography: theory and practice: image making for cinematographers and directors. [s.l.]: Focal Press, 2011. ISBN 9780240812090.
- Ahearn, L. 3D game textures: create professional game art using Photoshop [on line]. 3rd ed. Waltham, MA: Focal Press, 2012 [Consultation: 21/12/2016]. Available on: <<http://www.sciencedirect.com/science/book/9780240820774>>. ISBN 9780240820774.
- Rogers, S. Level up!: the guide to great video game design. 2nd ed. Chichester: Wiley, 2014. ISBN 9781118877166.

Others resources:

Hyperlink

<http://level-design.org>
Resource

www.digitaltutors.com
Resource

<http://www.brainstorm-digital.com>
Resource

<http://area.autodesk.com>
Autodesk AREA

www.thegnomonworkshop.com
3D library