Course guide
804394 - E3D - 3D Scenarios

Last modified: 13/07/2023

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

Degree: BACHELOR'S DEGREE IN DESIGN, ANIMATION AND DIGITAL ART (Syllabus 2023). (Compulsory subject).

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

LECTURER

Coordinating lecturer: Ripoll Tarré, Marc

Others:

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

- Carry out the design, modeling, texturing, lighting and rendering of 3D scenarios, to interact with objects or virtual characters.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	18,0	12.00
Hours large group	30,0	20.00
Self study	90,0	60.00
Guided activities	12,0	8.00

Total learning time: 150 h

CONTENTS

Game Design

Description:
Basic concepts
Mechanics vs themes
Rewards and challenges
Fun

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Level design

Description:
Planning and preproduction
Objectives, obstacles and progression
Game flow
Map layout
Game mechanics
Player experience
Storytelling

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Architecture and visualization

Description:
Urbanism and Territory
Architectural proportions
Historical periods
Projection systems
Perspective and camera

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Creation of 3D assets

Description:
Asset design
Carving
Retopology
Map extraction

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Texturing 3D assets

Description:
Shading techniques
PBR
Realistic texture

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Photogrammetry

Description:
Concept of photogrammetry
Scan 3D objects

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

3D engine

Description:
Level edit.
Unity 3d.
Real-time render.

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Exteriors

Description:
Level Design of exteriors
Terrains and landscapes
Vegetation and billboards
Atmosphere and effects

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Interiors

Description:
Level Design of interiors
Modularity
Collision model
Creating atmospheres

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

3D Lighting

Description:
Shaders
Dinamic lightingh
Direct and indirect illumination
Light baking

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Lightmaps

Description:
Lightmaps
Lightprobes
Ambient occlusion

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Scenarios and Virtual Reality

Description:
Virtual reality
Augmented reality
Space and proportions VR

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Scenarios for Postproduction

Description:
Real space vs. virtual space
Importance of the storyboard
Integration of digital elements

Full-or-part-time: 10h
Theory classes: 2h
Practical classes: 2h
Self study : 6h

Optimization and rendering

Description:
Optimizations
Export
Render engine
Postprocessing

Full-or-part-time: 20h
Theory classes: 4h
Practical classes: 4h
Self study : 12h

GRADING SYSTEM

BIBLIOGRAPHY

Complementary:
- Demers, Owen. Digital texturing & painting . [S.l.] : New Riders, cop. 2002. ISBN 0735709181.
- Kerr, Norman. Techniques of photographic lighting . New York : American Photographic Book Publishing, 1982. ISBN 0817460241.
- Ahearn, Luke. 3D game textures [Recurs electrònic] : create professioal game art using Photoshop . 3rd ed. Waltham, MA : Focal Press, 2012. ISBN 9780240820774.