

Course Unit	3D Design	Field of study	Visual Arts
Bachelor in	Game Design	School	School of Public Management, Communication and Tourism
Academic Year	2017/2018	Year of study	1
Type	Semestral	Semester	2
Workload (hours)	162	Contact hours	T - 30 TP 30 PL 30 TC - S - E - OT - O -
		Level	1-1
		Code	8309-414-1202-00-17
		ECTS credits	6.0

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Rogerio Paulo Azevedo Moreira Silva Gomes

### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Understand the history of equipment / object design and produce in response to this;
2. Know the basics of two-dimensional / three-dimensional objects representation;
3. Show skills in 3D object modeling (object building);
4. Show skills of 3D software manipulation (Blender).

### Prerequisites

Before the course unit the learner is expected to be able to:  
Not applicable.

### Course contents

Introduction to the theory and history of equipment design; Introduction to techniques of equipment design representation; Introduction to 3D modelling software Blender.

### Course contents (extended version)

1. Introduction to the theory and history of equipment design;
2. Introduction to the representation techniques in equipment design;
3. Spatial elements representation:
  - Technical and expressive skills in the context of two-dimensional representation,
  - Equipment design and representation methods,
  - Two-dimensional representation,
  - Three-dimensional representation,
4. Representation and technical elements of a model in video game;
5. Digital representation:
  - Introduction to digital representation,
  - Digital representation of an object.
6. Introduction to 3D modelling software Blender;
7. Specific development for modeling objects in Blender;
8. Modeling:
  - Creating and editing objects,
  - Import objects from other files into Blender,
  - Polygonal modeling, using subdivision,
  - Use of modifiers,
  - Modeling with curves.
9. Materials and lighting:
  - Introduction to materials,
  - Refraction and reflection,
  - Introduction to lighting,
  - Use of special lighting functions,
  - Rendering and image recording.
10. Textures:
  - Procedural textures,
  - Use of external images as textures,
  - Texture-mapping (planar, cubic, cylindrical, spherical, UV).

### Recommended reading

1. Fisher, G. (2014) Blender 3D Basics Beginner's Guide - 2 Edição. Birmingham: Packt Publishing Ltd 2. 7. [ISBN: 1783984910]
2. Torrent, R. (2009). Historia Del Diseño Industrial. Cátedra S. A. [ISBN: 8437622670]
3. Munari, B. (1981). Das Coisas Nascem Coisas. Edições 70. [ISBN: 9789724413631]
4. Simon D. (2007). Cosmic Motors. Spaceships, cars & pilots of another galaxy. Culver City, Calif. : Design Studio Press. [ISBN: 1933492287]
5. Scott, R. (2013). How to Draw: Drawing and Sketching Objects and Environments from Your Imagination. Culver City, Calif. : Design Studio Press [ISBN: 1933492732]

### Teaching and learning methods

Contact hours: In theoretical sessions, use of the lecture and interrogative methods. In practical sessions, use of demonstrative and active methods resorting to experimentation with different media and materials and conducting exercises of object modeling in Blender; Non-contact hours: Completion of exercises and development of a design project.

### Assessment methods

1. DISTRIBUTED EVALUATION - (Regular, Student Worker) (Final, Supplementary, Special)
  - Practical Work - 20% (Poster of data analysis and its oral defense.)
  - Practical Work - 15% (Graphical representation of the object in development.)
  - Practical Work - 15% (Three dimensional physical representation of the object in development: scale model.)
  - Practical Work - 50% (Poster of object development and its oral defense (with sketchbook and descriptive document).)
2. students in mobility - DISTRIBUTED EVALUATION - (Regular, Student Worker) (Final, Supplementary)
  - Practical Work - 20% (Poster of data analysis and its oral defense.)

**Assessment methods**

- Practical Work - 15% (Graphical representation of the object in development.)
- Practical Work - 15% (Three dimensional physical representation of the object in development: scale model.)
- Practical Work - 50% (Poster of object development and its oral defense (with sketchbook and descriptive document).)

**Language of instruction**

Portuguese, with additional English support for foreign students.

**Electronic validation**

Rogério Paulo Azevedo Moreira Silva Gomes	João Paulo Pereira de Sousa	Aida Maria Oliveira Carvalho	Luisa Margarida Barata Lopes
01-03-2018	02-03-2018	08-03-2018	11-03-2018