DEGREE CURRICULUM

DATA VISUALIZATION DESING

Coordination: LANDA MARITORENA, KEPA

Academic year 2022-23

DATA VISUALIZATION DESING 2022-23

Subject's general information

<table>
<tr><td>Subject name</td><td>DATA VISUALIZATION DESING</td></tr>
<tr><td>Code</td><td>102072</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
<table>
<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Digital Design and Creative Tehcnologies</td><td>3</td><td>OPTIONAL</td><td>Attendance-based</td></tr>
</table>
</td></tr>
<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><td>PRAULA</td><td>TEORIA</td></tr>
<tr><th>Number of credits</th><td>3</td><td>3</td></tr>
<tr><th>Number of groups</th><td>1</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>Coordination</td><td>LANDA MARITORENA, KEPA</td></tr>
<tr><td>Department</td><td>COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>During the course, lectures will be combined with practical classes. (40% of dedication)
In the first, students will learn the theoretical competences that they will apply later to the practical classes.
The student will carry out the autonomous work in non-contact hours. (60% of dedication)</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Spanish / Catalan / English (documentation)</td></tr>
<tr><td>Distribution of credits</td><td>1 crédit is equivalent to 25 hours of student work, 6 credits means 150 hours.</td></tr>
</table>

DATA VISUALIZATION DESING 2022-23

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
LANDA MARITORENA, KEPA	kepa.landa@udl.cat	3	Write an email to have a meeting. Wednesday 12-14
VIRGILI GOMA, JORDI	jordi.virgili@udl.cat	3	Write an email to have a meeting.

Learning objectives

The learning objectives of this subject are based on:

• Adapt the techniques learned in design for later use in data visualization.

• Deepen the use of infographics for its use in data visualization, being able to start innovating in its use.

• Ability to create new dynamics in the different types of technological interaction.

• Determine the design parameters used in any data visualization design for later reuse.

Competences

- **Basic significant competences/skills**

CB2. Develop students *know how* to apply their knowledge to their work or vocation in a professional way and possess the competencies that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.

- **General Competences**

CG3. Ability to respond to contexts typical of digital environments, recognizing physical, cognitive, cultural and social factors that frame design decisions.

- **Specific Competences**

CE11. Know how to visualize and visually communicate information by mastering the techniques of 2D and 3D graphic expression, knowing how to present the results based on aesthetic canons

CE12. Knowing how to apply sufficient design knowledge to analyze data, synthesize ideas, propose and defend a digital design concept and develop it until it can be put into practice using the appropriate creative technologies for each project

CE13. Acquire aesthetic and artistic sensitivity to make decisions during the creative process, demonstrating skill in handling the specific techniques and procedures of digital art

CE14. Ability to generate new ideas in the field of digital design from the artistic models of the different movements throughout the history of art, such as the Bauhaus, fostering the implementation of their creative skills and the power of anticipation and innovation.

Subject contents

1. T1. Design criteria in data visualization.

1.1. Historical cases.

1.2. Data visualization referents.

2. T2. Patterns in visualizations.

2.1. Classification of models for data representation.

2.2. Visualization analysis.

3. T3. Infographics and design parameters.

3.1. Technical bases for the development of representation with programs.

3.2. Technical bases for the development of the representation through programming.

These issues are cross-cutting in nature, so their development is raised simultaneously.

Methodology

1. Master classes

2. Troubleshooting

5. Case study

7. Visit

Development plan

Week	Descrition	Theory	Practice
1	T1. Design criteria in data visualization	Introduction Historical Cases	Data treatment and programming for data visualization
2	T1.	References	‘’
3	T3. **Infographics and design parameters**	References and resources	‘’
4	T2. Patterns in visualizations	Resources	‘’
5	T2. Patterns in visualizations	Intermediate delivery	‘’
6		Resources	
7		Resources	
8	Prueba/entrega 1 parcial	Delivery of the report and presentation of the project	
9			Delivery Exercises
10		References	Delivery Pro 4. Iteration 1

11		Resources	Mass data processing
12		Resources	Errors in data representation
13		References	Delivery Pro 4. Iteration 2
14		Delivery Project 2	
15			**Delivery Project 3**
16-17	**Exam / delivery 2 partial**	**Exam**	
18	Tutorials		
19	**Exam / recovery delivery 1 and 2**	**Exam and Delivery of projects 1 and 2**	

Evaluation

Acronym	Evaluation activities	Weighing	Minimum Note	Group activity	Mandatory	Recoverable
Pro1	Project 1	10%	5	NO	SI	No
Prs1	Project 2	30%	5	NO	SI	SI
M2	Project 3	30%	5	NO	SI	SI
Exam	Exam	30%	5	NO	SI	SI

Final_Grade = (0,10* Pro1) + (0,30*Pro 2) + (0,30*Prs 3) + (Exam *0,30)

Each project will consist of: data visualization + explanatory report + defense of the project (details on the Virtual Campus).

To pass the subject, it is necessary that FINAL_GRADE to be greater than or equal to 5.

It will be necessary to obtain at least 5 both in the Exam and in Projects 2 and 3 to pass the subject.In case of not passing the three parts, the maximum mark will be 4.
In case of suspending a part, you can recover that part exclusively.

Plagiarism will result in a 0 throughout the section if it occurs.

Disrespect towards a teacher or another student may be penalized with -1 point in the final grade, apart from what is defined in the University regulations.

Spelling mistakes in the exam, report or project are considered work defects and will penalize the grade

(1 tenth for every 2 faults). The first 3 will be exempted as possible errata. It is suggested that spell checkers be used in papers to avoid this.

Bibliography

Alcalde Ignasi. Visualización de la información. Ed UOC.

Cairo, Alberto. http://albertocairo.com/

Cairo, Alberto. El Arte Funcional http://www.thefunctionalart.com/

Lima, Manuel. Visual Complexity: Mapping Patterns of Information
McCandless,D https://informationisbeautiful.net/

Tufte Edward R. Envisioning Information by

Tufte Edward R. The Visual Display of Quantitative Information

Tufte, Edward R. 2006. *Beautiful Evidence*. Cheshire, CT: Graphics Press.

Open Knowledge Foundation https://okfn.org/

Visual Vocabulary. Financial Times. https://ft.com/vocabulary

Recursos Tecnicos:

https://www.arduino.cc/

https://flourish.studio/

Tableau https://www.tableau.com/

https://public.tableau.com/

Frictionless Toolkit https://frictionlessdata.io/

Centros:

Ars Electrónica Archive https://ars.electronica.art/festival/en/archive/

ZKM | Center for Art and Media Karlsruhe https://zkm.de/en

Interaction design Foundation https://www.interaction-design.org/

Medialab Prado https://www.medialab-prado.es/programas/visualizar

Specific bibliography will be provided depending on the topics covered.