Deusto
Deusto International Research School

Title of the course

- **230507 Data Analysis and Visualization**

Organizing center/area leading the course

Deusto International Research School (DIRS) – PhD program in Engineering for the Information Society and Sustainable Development

Training category

AF7. Methodology and research techniques

Professor/Coordinator of the training course

Coordinator: Pablo Garaizar Sagarminaga

Lecturers: Enrique Onieva, Amaia Méndez Zorrilla

Priority group

2nd year PhD students, but it can be taken by 1st and 3rd year students too

Competences

SPECIFIC COMPETENCE SC1. Select and apply the proper data transformation method to organize and present research results.

SPECIFIC COMPETENCE SC2. Select and design the most appropriate dashboard or visualization tool for presentation of research results.

Pre-requisites / prior knowledge

Awareness of research in Engineering, Basic statistical knowledge

Contents

Unit 1. Data analysis and transformations (6 hours – Enrique Onieva). Data formats and types. Data loading. Column-wise data transformations. Table-wise data transformations. Data export. Academic table generation

Unit 2. Data visualization (6 hours – Amaia Mendez). The most appropriate data visualization selection for an analysis, evaluate the effectiveness of a data visualization, and build interactive and engaging dashboards.

Level of the course

Introductory

Methodology

Next, the methods and techniques used during the course are summarized and the research strategy is defined:

- *Lecture.* The lecturer presents the contents of the course in a detailed and organized manner, within the lecture room. The contents, available during the lectures, will be made available in advance to the students (as slides) and classified by units.
- *Individual work.* The students will have to develop a research plan for their PhD dissertation in Engineering, clearly stating what they will do, how and when, during the following three years, in order to achieve a PhD dissertation which meets the expectations and components of a high quality dissertation.

Language of instruction

English

Mode of instruction

In-class

Number of places

PhD students: 30

Personnel: 10

Assessment

Be able to apply the techniques demonstrated in the module to a given exercise proposed by each lecturer at the end of their module.

Number of hours

12 hours

Bilbao Campus

- Dates:
    - Monday, 11 March 2024 (15:00-18:00)
    - Tuesday, 12 March 2024 (15:00-18:00)
    - Wednesday, 13 March 2024 (15:00-18:00)
    - Thursday, 14 March 2024 (15:00-18:00)