Name	Mind the Data			Field of study	-
Classification	Extracurricular Course/Project			School	Polytechnic Institute of Bragança
Academic Year	2022/2023	Year of study	-	Level	-	ECTS credits	6.0
Type	Semestral	Semester	2	Code	9999-940-1034-00-22

Workload (hours)	162	Contact hours	T	TP	PL	TC	S	E	OT	O
			-	-	-	-	-	-	-	-

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)	Joao Paulo Pais de Almeida

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Demonstrate teamwork skills under multidisciplinary, interdisciplinary and transdisciplinary environment.
2. Know the Design Thinking methodology and its application in Data Science projects.
3. Manage Data Science projects based on fundamental steps and focused on creating value either for the improvement of a product or process, or for the start of a potential business.
4. Effectively communicate the potential of an idea to an audience.

Prerequisites

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

Course contents

Application of the Design Thinking methodology in Data Science projects based on Academic or Real problems. Multidisciplinary, interdisciplinary and transdisciplinary teamwork. Use of brainstorming tools and prototyping to foster innovation. Analysis of the value proposition resulting from the project.

Course contents (extended version)

1. What is Design Thinking? Structure and steps of a design thinking process.
   - The pillars of Design thinking: Desirability, feasibility and viability.
   - Empathy, definition, ideation, prototyping and testing.
2. Structure and project stages in Data Science and its relationship with Design Thinking stages.
   - Data collection (empathy)
   - Exploratory analysis (define)
   - Transformation (ideate)
   - Modelling (prototype)
   - Testing
3. Teamwork, planning and project management, Discussion of ideas (brainstorming).
4. Innovation pathways.
5. Value proposition for Data Science projects.
6. Solution validation.
7. Analysis of possible End User value and business value.

Recommended reading

1. Stackowiak, R. and Kelly, T. (2020). Design Thinking in Software and AI Projects - Proving Ideas Through Rapid Prototyping. Springer Verlag
2. Plattner, H. , Meinel, C. , & Leifer, L. (2012). Design Thinking Research: Studying Co-Creation in Practice. Springer Berlin Heidelberg.
3. Edelman, D. and Abraham, M. (2022). Customer Experience in the Age of AI. Harvard Business Review, March-April 2022.
4. Brown, T. (2019). Change by Design, Revised and Updated: How Design Thinking Transforms Organizations and Inspires Innovation. Harper business.
5. Curedale, R. (2017). Design Thinking Process & Methods 4th Edition. Design Community College Incorporated

Teaching and learning methods

Active learning methods, focused on the development of teamwork, through a Design Thinking process, in the approach to Data Science projects.

Assessment methods

- Continuous Evaluation. - (Regular) (Final)
  - Projects - 100% (TeRegular presentation of the evolution and development of a project in Data Science.)

Language of instruction

1. English
2. Portuguese
3. Spanish

Electronic validation

Joao Paulo Pais de Almeida	Vera Alexandra Ferro Lebres
04-03-2023	06-03-2023