UJI Study Abroad Program 2022 #6

Course Title: Computational Thinking

Academic Director: **Dr. Óscar Belmonte Fernández**, Associate professor in the Department of Computer Language and Systems (oscar.belmonte@uji.es)

> **Dr. Óscar Belmonte Fernández** serves as a director of the Cuatroochenta Chair on Artificial Intelligence, Health and Well-being. Cuatroochenta is a rising star IT firm in Spain that provides digital clouds and cyber security solutions. He is co-director of the Research Group on Machine Learning for Smart Environments in INIT. He has published more than 50 research papers. He has participated in European and national research projects. He has completed a research stay at Trinity College Dublin and at Middlesex University London. He has more than 23 of teaching experience.

Some of other featured Lecturers: (for the promotional purpose, with his/her short CV)

> **Sergio Aguado Gonzalez** is co-founder of Cuatroochenta enterprise, where he is the Chief of Innovation Office. He has more than 15 years of experience in the IT field developing mobile and cloud solutions for companies.
>
> **Kike Algora Sebastiá** is co-founder and director of Oremit, an enterprise devoted to promote Emotional Intelligence and leadership in companies.

Objectives of the course:

Computational thinking is a technique for approaching problem solving using computers to validate hypotheses based on statistics and computer science. In addition, this course presents other transversal techniques such as agile development, design thinking, emotional intelligence and creativity, which will help students to find out creative solutions to problems.

The main objective of this course is to introduce students in this technique through the development of a small/medium size project. The projects will be present by the students at the end of the course.

Target Students:

Bachelor or master students in IT, digital marketing, economics, psychology, biology, and any other field that can take advantage from the computers to solve problems. Students should have basic command of Statistics and Linear Algebra. Basic knowledge of Python programming is also recommended.

Course Duration: 80 hours (4 hours per day/ 5 days a week, including study visits)

Methodology:

- This course is composed of 10 modules, 4 of them present transversal topics in the realm of Computational Thinking. The other 6 modules present different topic in the realm of Computational Thinking, such as statistics and machine learning.
- Topics will be introduced using different learning techniques, such as master classes, exercises and work in groups.
- At the beginning of the second course week, the students, in groups, will present a project proposal to be developed during course duration.
- At the end of the course, students groups will present their project for evaluation.

Class Modules:

	Block	Lecturers
1	Agile project development	**Reyes Grangel Seguer**, Associate Professor, Department of Computer Languages and Systems.
2	Design Thinking and entrepreneurship	**Meche Segarra Ciprés**, Associate Professor, Department of Business Administration and Marketing.
3	Emotional Intelligence	**Kike Algora Sebastiá**, Director and co-founder of OREMIT.
4	Creativity	**Kike Algora Sebastiá**, Director and co-founder of OREMIT.
5	Machine Learning	**Óscar Belmonte Fernández**, Associate Professor, Department of Computer Languages and Systems, INIT.
6	Deep Learning	**Emilio Sansano Sansano**, Labor Associate Professor, Department of Industrial Systems.
7	Statistics	**Marina Martínez García**, Assistan Professor, Department of Mathematics.
8	Quantum Computing	**José Martínez Sotoca**, Associate Professor, Department of Computer Languages and Systems, INIT.
9	Cloud Computing	**Ricardo Borillo Domenech**, Analysis and TI Development at UJI.
10	Low-Code/No-Code	**Sergio Aguado Gonzalez**, CIO and co-founder of Cuatroochenta.

Study Visits:

- Cuatroochenta is a company dedicated to the development of mobile and cloud computing applications. In addition, Cuatroochenta has communication, advertising and innovation departments. Cuatroochenta is located in the Universitat Jaume I business park.

Course Schedule:

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Wellcome (2 h.) M1 (2 h.)	M1 (2 h.) M5 (2 h.)	M1 (1 h.) M5 (3 h.)	M2 (2 h.) M5 (2 h.)	M2 (2 h.) M5 (2 h.)
DAY 6	**DAY 7**	**DAY 8**	**DAY 9**	**DAY 10**
M2 (1 h.) M6 (3 h.)	M3 (2 h.) M6 (2 h.)	M3 (2 h.) M6 (2 h.)	M3 (1 h.) M4 (1 h.) M6 (2 h.)	M4 (2 h.) M7 (2 h.)
DAY 11	**DAY 12**	**DAY 13**	**DAY 14**	**DAY 15**
M4 (2 h.) M7 (2 h.)	M7 (2 h.) M8 (2 h.)	M7 (2 h.) M8 (2 h.)	M7 (1 h.) M8 (3 h.)	M8 (2 h.) M9 (2 h.)
DAY 16	**DAY 17**	**DAY 18**	**DAY 19**	**DAY 20**
M9 (2 h.) M10 (2 h.)	M9 (2 h.) M10 (2 h.)	M9 (2 h.) M10 (2 h.)	M9 (1 h.) M10 (3 h.)	Prj (2 h.) Study visits (2 h.)

Evaluation Method:

Students will present their projects on the last day of class. The evaluation of the course will correspond to the evaluation of the project. All students belonging to the same working group will get the same grade.