School of Technology and Management
Course Unit Syllabus

Level of qualification:
Second Cycle (EQF level 7) - Master
Study cycle:
Internet of Things

Course Unit: **2014008** - **Web of Things**

Year 1 **Semester 2** **ISCED Code: 0613** **ECTS: 7,5**

Type of Course Unit: Compulsory **Delivery Mode:** Face-to-face / Distance Learning **Language of Instruction:** Portuguese

COURSE COORDINATOR: Luís Carlos Bruno

HOURS OF WORK

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
187,5		**45**							**142,5**

Prerequisites (if applicable): n.a.

LEARNING OUTCOMES (knowledge, skills and competence)

On successful completion of this course unit, the student should be able to:

1. Identify the critical factors for the implementation and usage of Web of Things in the context of the devices, users, networks, data and security.
2. Apply the communication and services standards that are appropriate for each implementation of the WoT.
3. Apply application programming interfaces for WoT.
4. Design functional solutions for WoT with security.
5. Implement prototypes of WoT systems.

CONTENTS

1. Introduction to WoT.
2. WoT architecture and standards.
3. Application Programming interfaces for Wot.
4. Describe and discover Web things.
5. Share Web things with security and privacy.
6. Implementation of WoT applications.
7. Platforms to implement WoT applications.

DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

We specify the relevant contents for each learning outcome:

1. Identify the critical factors for the implementation and usage of Web of Things in the context of the devices, users, networks, data and security (1, 2, 3, 4, e 5).
2. Apply the communication and services standards that are appropriate for each implementation of the WoT (2, 4, 5, 6, e 7).
3. Apply application programming interfaces for WoT (3, 6, e 7).
4. Design functional solutions for WoT with security (2, 3, 4, 5, 6, e 7).
5. Implement prototypes of WoT systems (6 e 7).

TEACHING METHODOLOGIES

Each topic is explored in the first part of the class through the presentation and discussion of the respective contents. In the second part of the class will be applied practical work related to the evaluation project of the course.

DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES

The presentation of the theoretical and pratical contents are exemplified by case studies that help students to develop solutions to the problems presented by the final assessment project. The practical part of the class should support iteratively the different working phases to complete the final project.

EVALUATION METHODS

The assessment has one component:

Final project with report and respective defense: 100%.

Each project must be completed by groups of 2 students maximum.

MAIN BIBLIOGRAPHY

Dominique Guinard, & Vlad Trifa. 2016. Building the Web of Things: With examples in Node.js and Raspberry Pi. Manning Publications.

Patrick Mulder, & Kelsey Breseman. 2016. Node.js for Embedded Systems: Building Web Interfaces for Connected Devices. O'Reilly Media.

Year of implementation: 2017/2018 | Date of approval by the Technical-Scientific Board: 2016-09-28