POLI
ESCOLA SUPERIOR
TECNOLOGIA
GESTÃO
TÉCNICO
GUARDA

SUBJECT DESCRIPTION

MODELO

PED.013.03

Course	DataScience and Artificial Intelligence						
Subject	Data Analysis and Data Logging Systems						
Academic year	2023-24	Curricular year		2nd	Study period		1st semester
Type of subject	Clique	Student workload (H)		Total: 168	Contact: 60	ECTS	6
Professor(s)	Paulo Vieira						

☐ Area/Group Coordinator ☐ Head of Department	(select)	Fernando Melo Rodrigues

PLANNED

1. LEARNING OBJECTIVES

(1000 characters max)

> 1. Know the architecture and components of Data Acquisition and Data Logging Systems (DADLS).
> 2. Set up a DADLS
> 3. Integrating DADLS with mobile devices.
> 4. Integrating DADLS with clouds
> 5. Integrating DADLS with multiplatforms

2. PROGRAMME

(1000 characters max)

> 1- introduction to Data Acquisition and Data Logging Systems (DADLS): Definitions and architecture
>
> 2- Data acquisition systems and their components: sensors, actuators, SD cards.
>
> 3. Boards for building embedded systems: e.g. raspberry Pi and Arduino.
>
> 4. Shields and hardware add-ons for boards.
>
> 5. Assembling and programming embedded systems such as DADLS
>
> 6. Data acquisition and local storage
>
> 7. Integration of DADLS with the Cloud and multiplatforms
>
> 8. Mobile devices and their embedded sensors.
>
> 9. Data acquisition and storage on mobile devices.
>
> 10. Integration of mobile devices with the Cloud and multi-platforms
>
> 11. Other DADLS. Acquisition, storage and integration and multiplatform integration

3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

(1000 characters max)

Content 1 is consistent with objective 1
Content 2 is consistent with objective 1
Content 3 is consistent with objective 1,2
Content 4 is consistent with objective 2
Content 5 is consistent with objective 2
Content 6 is consistent with objective 2
Content 7 is coherent with objective 4, 5
Content 8 is consistent with objective 3
Content 9 is consistent with objectives 3, 4, 5
Content 10 is consistent with objective 3, 4, 5

4. MAIN BIBLIOGRAPHY

(1000 characters max)

1. https://www.raspberrypi.org [Outubro 2021]

2. https://www.arduino.cc [Outubro 2021]

3. Richardson, M., & Wallace, S. (2012). Getting started with Raspberry Pi (Make: Projects). Maker Media, USA.

4. Banzi, M., & Shiloh, M. (2014). Getting started with Arduino: the open source electronics prototyping platform. Maker Media, Inc.

5. Yughi Chan, Kelly Ryan Wilmoth, Shahbaz (2020). Arduino Programming: A Beginners Guide of How Best to Program Arduino Step by Step in 2020. ©2020 Yughi Chan (P)2020 Yughi Chan

6. Ricardo Queirós, Desenvolvimento de aplicações com Android Studio, Edição: 2016, FCA, ISBN: 978-972-722-819-5.

7. Ricardo Queirós, Android profissional, Desenvolvimento moderno de aplicações, Edição: 2018, FCA, ISBN: 978-972-722-874-4.

8. Tutorial Android PHP/MYSQL
https://www.tutorialspoint.com/android/android_php_mysql.htm [Outubro 2021]

9. Vitor Amadeu Souza, Desenvolvendo webapps para Android Com base no HTML, CSS, PHP e MySQL, 2015 by Cerne Tecnologia e Treinamento Ltd

10. Set of relevant papers from scopus database about Data Acquisition and Data Logging

5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

(1000 characters max)

This course will use the expository method of content in interaction with the students, through demonstrative practical analysis orientated towards problem-solving.

Continuous assessment: 40% practical work + 60% assessment test

Other assessment periods: assessment test

6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

(3000 characters max)

1. lecture is consistent with the objectives due to the need to present the theoretical theoretical content to the students

2. Interactive lectures are consistent with the objectives because student/teacher interaction helps students to
learning of concepts as well as introducing new ideas, perspectives and solutions.

3. Problem-solving is consistent with the objectives because the application of theoretical content to practical exercises of realistic inspiration, related to the subject taught, consolidates the subject given, emphasizing know-how.

7. ATTENDANCE

Nothing to mention.

8. CONTACTS AND OFFICE HOURS

Paulo Vieira, pavieira@ipg.pt, Office-36-ESTG.IPG

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9. OTHERS

Nothing to mention.

DELETE SECTION 9. IN COMPLETED SUBJECT DESCRIPTION

DATE

Outubro 2023

SIGNATURES

Professor(s), Area/Group Coordinator or Head of Department signatures

Assinatura na qualidade de (clicar)

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