

<b>POLI</b> ESCOLA SUPERIOR TECNOLOGIA GESTÃO <b>TÉCNICO</b> <b>GUARDA</b>	<b>SUBJECT DESCRIPTION</b>	<b>MODELO</b> PED.013.03
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Course	DataScience and Artificial Intelligence					
Subject	Distributed Systems					
Academic year	2023-24	Curricular year	2	Study period	2-sem	
Type of subject	Compulsory	Student workload (H)	Total: 168	Contact: 75	ECTS	6
Professor(s)	Paulo Vieira					
<input checked="" type="checkbox"/> Area/Group Coordinator <input type="checkbox"/> Head of Department	(select)	José Fonseca				

<b>Planned</b>
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### 1. LEARNING OBJECTIVES

1. To do the implementation and operation structure of a distributed platform
  2. Recognize and implement Inter-Process communication: Client Server / Master – Slave
  3. Know the models and evaluate the technologies that allow the development of solutions distributed.
  4. Characterize the Distributed File Systems: Functionality, interface and implementation of file servers.
  5. Analyze data replication: Consistency, order, performance, robustness.
  6. Get to know Cloud based system models and services
  7. Development of distributed systems using WebServices and APIs
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### 2. PROGRAMME

1. Introduction to distributed systems
  2. Communication in distributed systems
  3. Distributed programming
  4. Web Services
  5. Cloud Systems
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### 3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

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The themes presented in the syllabus intend to make known the models adopted for the development of distributed and/or cloud-based systems.

(1000 characters max)

#### 4. MAIN BIBLIOGRAPHY

1. Coulouris, G.; Dollimore, J.; Kindberg, T.; & Blair, D. (2012). *DISTRIBUTED SYSTEMS Concepts and Design 5th Ed.* Addison-Wesley.
2. Vitillo, R. (2021). *Understanding Distributed Systems: What every developer should know about large distributed applications (2th Edition)*. ISBN-10: 1838430202. ISBN-13 978-1838430207.
3. Tanenbaum, A.; & Bos, H. (2015). *Modern Operating Systems (4rd edition)*. Prentice-Hall.
4. Pierfederici, F. (2016). *Distributed Computing with Python*. Packt Publishing Ltd.
5. Newman, S. *Building Microservices: Designing Fine-Grained Systems*, (2021.) O'Reilly Media.
6. Galli, D. L. (2000). *Distributed operating systems*. Prentice Hall PTR.
7. John Blomer, *Power Programming with RPC*, O'Reilly & Associates, inc., 1992.
8. Cerami, E. (2002). *Web services essentials: distributed applications with XML-RPC, SOAP, UDDI & WSDL*. " O'Reilly Media, Inc."
9. Velte, T. Velte, A. and Elsenpeter, R. (2009). *Cloud Computing, A Practical Approach*. McGraw-Hill Osborne Media.
10. <https://docs.soliditylang.org/en/v0.8.19/> [março 2023]

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#### 5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

In this UC, the expository method of content with interaction through analysis will be used combination of concepts and practical situations by the active method, as well as the interrogative and demonstrative in situations that favor them.

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

Other evaluation seasons: evaluation test

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#### 6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

1. The expository lesson is coherent with the objectives due to the need to present the

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theoretical content to students, namely concepts related to distributed systems, communication scheduling, name management, security and cloud systems.

2. Interactive lesson is coherent with the objectives because the student/faculty interaction helps to learning concepts in addition to introducing new ideas, perspectives and solutions that can be applied both in the analysis phase and in the implementation of distributed solutions and/or cloud-based.

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

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## 7. ATTENDANCE

*As there are no specific rules beyond what is determined in the context of the course and the IPG, the attendance will not be taken into account as an evaluation factor.*

## 8. CONTACTS AND OFFICE HOURS

Paulo Vieira, [pavieira@ipg.pt](mailto:pavieira@ipg.pt), gab-36-ESTG.IPG, monday: 08:30-11:00

## 9. OTHERS

*DELETE SECTION 9. IN COMPLETED SUBJECT DESCRIPTION*

## DATE

February 2024

## SIGNATURES

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

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