

## Computer Networks and Distributed Computing

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**ECTS:** 3 ECTS

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**COORDINATOR:** Jesús María Rodríguez Presedo (jesus.presedo@usc.es)

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**UNIVERSITY WHERE THE COORDINATOR IS:** USC

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**HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES?** Yes

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**LECTURER 1:** José Carlos Cabaleiro Domínguez (jc.cabaleiro@usc.es)

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**UNIVERSITY WHERE THE LECTURER 1 IS:** USC

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**HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES?** Yes

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### SUBJECT CONTENTS

#### 1. Networks (5 hours)

- \* Protocol TCP/IP. Layer model
- \* Connection oriented and connectionless services. TCP and UDP
- \* Foundations of the reliability transmission
- \* Classification of networks
- \* Residential network access. Modem, ADSL, cable
- \* Local area networks. Ethernet
- \* Hubs, switches and bridges.

#### 2. Paradigms of the distributed computation (5 hours)

- \* The client-server paradigm
  - \* P2P Architectures
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- \* The publish-subscribe model
- \* Remote invocation
- \* The paradigm of distributed objects
- \* Other paradigms of distributed computation

Practices:

1. IP directions, ports, protocols, DNS (2 hours)
2. Connection oriented sockets , TCP (4 hours)
3. Connectionless sockets, UDP (4 hours)
4. Remote Method Invocation (RMI) (6 hours)
5. Introduction to the programming of Web applications (4 hours)

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**METHODOLOGY**

A mix of theoretical and practical clases..

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**LANGUAGE USED IN CLASS:** Spanish

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**IS IT COMPULSORY TO ATTEND CLASS?** Students can attend via conference system,

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**BIBLIOGRAPHY**

1. J.F. Kurose y K.W. Ross, "Redes de Computadores. Un enfoque descendente", 5ª edición ISBN: 9848478291199, 2010, Pearson Educación S. A.
  2. D.E. Comer, D.L. Stevens and M. Evangelista, "Internetworking with TCP/IP, Vol. III: Client-Server Programming and Applications, Linux/Posix Sockets Version", ISBN: 0130320714, 2001, Prentice Hall.
  3. M. L. Liu. "Computación Distribuida: Fundamentos y aplicaciones". Addison Wesley 2004. ISBN 84-7829-066-4.
  4. G. Coulouris, J. Dollimore and T. Kindberg. "Sistemas Distribuidos: conceptos y diseño". Addison Wesley 2001. ISBN 84-7829-049-4.
  5. M. Hall and L. Brown. "Core Web programming. Segunda edición". Prentice Hall 2001. ISBN 0-13-089793-0.
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## SKILLS

### Basic:

CG1: To have knowledge that provide a basis or opportunity for originality in developing and / or applying ideas, often within a research context, knowing how to translate industrial needs in terms of R & D in the field of mathematics Industrial.

CG3: To be able to integrate knowledge in order to state opinions using information that even incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of their knowledge.

### Specific:

CE4: To be able to select a set of numerical techniques, languages and tools, appropriate to solve a mathematical model.

CE5: To be able to validate and interpret the results, comparing them with visualizations, experimental measurements and functional requirements of the physical engineering system.

### Numerical simulation specialization:

CS2: To adapt, modify and implement software tools for numerical simulation.

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**WILL YOU BE USING A VIRTUAL PLATFORM?** Yes. Moodle (USC)

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**WILL YOU BE USING ANY SPECIFIC SOFTWARE?** Yes. Eclipse or Netbeans for Java

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## CRITERIA FOR THE 1ST ASSESSMENT OPPORTUNITY

The final examination will represent 50% of the final qualification. It will be compulsory to obtain 5 out of 10 to pass it.

Class attendance to the practices and participation in the debate classes will count to 20% of the final qualification.

The quality of the essays as well as its suitable presentation will count to 30% of the final qualification.

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## CRITERIA FOR THE 2ND ASSESSMENT OPPORTUNITY

The same as for 1st opportunity.

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