Computer Networks and Distributed Computing

ECTS: 3 ECTS

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

UNIVERSITY WHERE THE COORDINATOR IS: USC

HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES? Yes

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

UNIVERSITY WHERE THE LECTURER 1 IS: USC

HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES? Yes

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
    * 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)

METHODOLOGY

A mix of theoretical and practical clases.

LANGUAGE USED IN CLASS: Spanish

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: 98484782911199, 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.

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.

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

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.

The theorical classes will develop the competences CG1, CG3 and CE4.

The practical classes in the computer classroom will develop the competences CE5 and CS2.

CRITERIA FOR THE 2ND ASSESSMENT OPPORTUNITY

The same as for 1st opportunity.
