

Academic Year: (2019 / 2020)

Review date: 02-05-2019

Department assigned to the subject: Department of Telematic Engineering

Coordinating teacher: MUÑOZ MERINO, PEDRO JOSE

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

STUDENTS ARE EXPECTED TO HAVE COMPLETED

The course prerequisites are the following:

- Programming
- JAVA Programming Language
- Techniques for oral and written communication
- Basic knowledge about TCP/IP protocol
- Basic knowledge about HTTP protocol
- Basic knowledge about security

It is expected that students who does not master any to these topics will have difficulties to follow-up this course. These students who lack knowledge in some of these topics, should prepare these topics by their own.

COMPETENCES AND SKILLS THAT WILL BE ACQUIRED AND LEARNING RESULTS.

In this course, the following competences are reinforced:

- Knowledge and understanding that provide a basis or opportunity for originality in developing and/or applying ideas, often in a research context
- Students can apply the acquired knowledge and their capacity to solve problems in new or unfamiliar environments within broader contexts (or multidisciplinary) related to their field of study
- Students acquire the learning abilities that enable them to continue studying in a self-regulated and autonomous learning way
- Ability to project, calculate and design products, processes and installations in all the contexts of Telecommunication Engineering
- Ability for mathematical modeling, calculation and simulation in technological centres and enterprise engineering, specifically in research, development and innovation tasks in all the contexts related to Telecommunication Engineering and related multidisciplinary fields
- Ability to apply the acquired knowledge and solve problems in new or unusual environments in broader and multidisciplinary contexts, with the ability to integrate knowledge.
- Ability for the continuous, autonomous and self-regulated learning
- Ability to model, design, implement, manage, operate, manage and maintain networks, services and contents
- Ability to make the scheduling, decision making and packaging of services and applications considering the direct and operational costs, the implementation plan, supervision, security procedures, scaling and maintenance, as well as to manage and assure the quality in the development process
- Ability to understand and know how to apply the functioning and organization of Internet, the new generation Internet technology and protocols, the component based models, intermediary software and services

DESCRIPTION OF CONTENTS: PROGRAMME

In a generic way, the course contents are the following:

- Requirement specification (users, scenarios)
- Architecture of a telematic application
 - o Management of contents
 - o Management of users
 - o Business logic
 - o Interface
- Scalability

- Introduction to Distributed computing

In a more specific way, such generic contents are acquired using a collection of specific modelings, technologies and methodologies, which are divided into three blocks:

I. Modeling of telematic applications

- Requirement specification
- Modeling of software applications
- Modeling of web applications

II. Basic telematic applications technologies. These are low level technologies from which telematic applications can be built.

- Data (including content and users) and meta-data
 - o Data bases, SQL, JDBC
 - o XML and meta-data
- Business logic and presentation
 - o JEE
 - o HTML5, Javascript and AJAX
- Introduction to web services and distributed computing

III. Platforms for holding telematic applications. These platforms are created using the basic technologies, but they also provide a set of modules, components or software packages which facilitate the construction of final telematic applications which can be composed by the use of basic technologies plus these components

LEARNING ACTIVITIES AND METHODOLOGY

The teaching methodology to be used includes the following:

- Lectures, aimed at teaching the related competencies. It will include theoretical explanations, exercises, interaction with students by asking questions, etc.
- Personal work and study by students. It is specially oriented for the students acquisition of the capacity for self-organization and planning of individual work and learning process. Students will review and reinforce the concepts of the course by various methods such as reading or performing exercises.
- Practical assignments using the computer. These practical assignments will be aimed at strengthening practical multiple concepts covered in the course.
- Analysis of case studies. Allows nested multiple technologies in a setting where they interact with each other. It lets understand the complex relationships between architectures, mechanisms and services.
- Group work for students. This will imply to make a project by the students about the concepts covered during the course.

ASSESSMENT SYSTEM

The evaluation will assess the level of achievement of the learning objectives based on the students outcomes.

The calculation of the grade will be obtained in the following way:

- 30 % Theory partial exams
- 20 % Project as group work
- 50 % Final exam of the course, including all course contents. It is required a minimum grade of 4 (in a scale of 10 points) in the final exam to pass the course and a minimum grade of 5 for the continuous evaluation.

For those students who fail the course in the first opportunity, they will have a second opportunity. If the student followed the continuous evaluation, the final course exam will have the same percentage value of 50% as in the first opportunity, and the final course grade will consider the grade of the continuous evaluation and the grade obtained in the final exam. Therefore, students who follow the continuous evaluation have the same weight distribution of percentages of the different assessments in the first opportunity and the second opportunity, and the only assessment that can be repeated (and therefore change their grade) is the final course exam.

If the student has not followed the continuous evaluation, the final course exam of the second opportunity will constitute 100 % of their grades. In any case, in the second opportunity, for students who have followed the process of continuous evaluation, the best grade will be considered between

both ways of evaluation.

% end-of-term-examination: 50

% of continuous assessment (assignments, laboratory, practicals...): 50

BASIC BIBLIOGRAPHY

- J. L. Weaver, K. Mukhar, and J. Crume Beginning J2EE 1.4. From Novice to Professional, Apress, 2004,
- J. Murach, M. Urban Murach's Java Servlets and JSP, Murach, 2014

ADDITIONAL BIBLIOGRAPHY

- A. Skonnard, M. Gudgin Essential XML Quick Reference: A Programmer's Reference to XML, XPath, XSLT, XML Schema, SOAP, and More, Addison-Wesley Professional, 2001
- David Flanagan Javascript: The Definitive Guide, Javascript: The Definitive Guide, 1998
- S. Ceri, P. Fraternali, A. Bongio, M. Brambilla, S. Comai, and M. Matera Designing Data-Intensive Web Applications, Morgan Kaufmann, 2003