Web Applications

Academic Year: (2024 / 2025) **Review date: 17-01-2025**

Department assigned to the subject: Telematic Engineering Department

Coordinating teacher: ARIAS FISTEUS, JESUS

Type: Electives ECTS Credits : 3.0

Year : Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

- Systems Programming

SKILLS AND LEARNING OUTCOMES

CB1: Students have demonstrated possession and understanding of knowledge in an area of study that builds on the foundation of general secondary education, and is usually at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study
CB2: Students are able to apply their knowledge to their work or vocation in a professional manner and possess the competences usually demonstrated through the development and defence of arguments and problem solving within their field of study.
CG1: Ability to write, develop and sign projects in the area of telecommunications engineering aimed at the design, development and utilization of telecommunications and electronic networks, services and applications, in accordance with the competences acquired in the degree program, as set out in Section 5 of OM CIN 352/2009.
ECRT13: Ability to differentiate the concepts of network access and transport, circuit switching and packet switching networks, fixed and mobile networks as well as systems and applications of distributed networks, voice services, audio, data, video and interactive services and multimedia.
ETEGITT7: Ability to program network and distributed telematics services applications.
RA1: Knowledge and understanding of the general fundamentals of engineering, scientific and mathematical principles, as well as those of their branch or specialty, including some knowledge at the forefront of their field.
RA3: Design. Graduates will have the ability to make engineering designs according to their level of knowledge and understanding, working as a team. Design encompasses devices, processes, methods and objects, and specifications that are broader than strictly technical, including social awareness, health and safety, environmental and commercial considerations
RA5: Applications. Graduates will have the ability to apply their knowledge and understanding to solve problems, conduct research, and design engineering devices or processes. These skills include knowledge, use and limitations of materials, computer models, process engineering, equipment, practical work, technical literature and information sources. They must be aware of all the implications of engineering practice: ethical, environmental, commercial and industrial.

OBJECTIVES

- Understanding the basic structure of a web application.
- Using the HTTP protocol to communicate client and server.
- Programming the presentation layer of a web application with HTML, CSS and JavaScript.
- Programming the business logic layer of a web application using a web application development framework.
- Programming the data layer of a web application with an object-relational mapping system.

DESCRIPTION OF CONTENTS: PROGRAMME

1.- Introduction to the web:
  - Basic structure of a web application.
  - The HTTP protocol.

2.- Presentation layer:
- The HTML language.
- The CSS language.
- The JavaScript language and the JQuery library.

3.- Business logic layer: programming the server-side business logic.
4.- Data access layer: object-relational mapping.

LEARNING ACTIVITIES AND METHODOLOGY

The following kinds of activities will take place during the course:

- Lectures: theoretical introduction to the main concepts of the course, at its beginning.
- Practical classes: the explanation of theoretical concepts is interleaved with practical exercises to be solved by students on a computer.
- Laboratory classes: students develop a full web application guided by the instructor.

ASSESSMENT SYSTEM

% end-of-term-examination:	30
% of continuous assessment (assigments, laboratory, practicals…):	70

Assesment comprises:

- An end-of-term exam with theoretical and practical exercises regarding the contents of this course (30%). No minimum score is required in this exam.

- Continuous assessment: one mid-term exam (20%) and a web application to be developed in the lab (50%). Assessment of the latter will be progressive through the semester as students reach the required milestones.

BASIC BIBLIOGRAPHY

- David Flanagan JavaScript: The Definitive Guide, 6th Edition, O'Reilly Media Inc., 2011

- Jennifer Kyrnin, Julie C. Meloni Sams Teach Yourself HTML, CSS, and JavaScript All in One, Third Edition, Pearson, 2019

- Shameer Kunjumohamed, Hamidreza Sattari, Alex Bretet, Geoffroy Warin Spring MVC: Designing Real-World Web Applications, Packt Publishing, 2016