

Academic Year: (2023 / 2024)

Review date: 20-04-2023

Department assigned to the subject: Telematic Engineering Department

Coordinating teacher: ARIAS FISTEUS, JESUS

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

- Programming
- Data structures and algorithms
- Computer Networks
- Data bases
- Data protection & cybersecurity

OBJECTIVES

The objective of this course is that the student learns to develop complete Web applications with databases, understanding the main protocols used on the Web (HTTP, TLS), applying the main client-side technologies (HTML, CSS, JavaScript) and using a server-side framework combined with an object-relational mapping system for data access.

DESCRIPTION OF CONTENTS: PROGRAMME

- 1.- The World Wide Web and related protocols
 - Transport Layer Security (TLS)
 - Hypertext Transfer Protocol (HTTP)
 - Introduction to Web applications
- 2.- Client-side
 - Content presentation languages (HTML and CSS)
 - Client-side programming languages
- 3.- Server-side
 - The Model-View-Controller pattern
 - The model layer (access to relational and non-relational databases, object-relational mapping systems)
 - The controller layer
 - The view layer
- 4.- Other aspects in the development of Web applications
 - Security
 - Scalability
 - Advanced technologies

LEARNING ACTIVITIES AND METHODOLOGY

Learning activities:

THEORETICAL-PRACTICAL CLASSES: In them, the knowledge that students should acquire is presented. Students receive class notes and basic references to help them to follow classes and do subsequent work. Practical exercises and problems will be solved by the students, and tests will be held to assess they have acquired the necessary skills.

TUTORING: Individualized assistance to students by the teacher.

INDIVIDUAL OR GROUP STUDENT WORK.

LABORATORIES: Practical computer exercises.

FINAL EXAM. The knowledge, skills and abilities acquired throughout the course will be assessed globally.

Methodology:

LECTURES: The teacher presents contents with support of computer and audiovisual media. The main concepts of the subject are developed and materials and bibliography are provided to complement

students' learning.

PRACTICES: Resolution of practical cases, problems, etc. proposed by the teacher, individually or in groups.

TUTORING: Individualized assistance to students by the teacher.

LABORATORY PRACTICES: Applied / experimental teaching in laboratories under the supervision of a tutor.

ASSESSMENT SYSTEM

FINAL EXAM: the knowledge, skills and abilities acquired throughout the course will be assessed globally. A minimum grade of 4 points out of 10 in the final exam is required in order to pass this course.

CONTINUOUS EVALUATION: there will be two partial exams (10% each) and a programming project of a complete web application with database (50%).

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

BASIC BIBLIOGRAPHY

- Dafydd Stuttard, Marcus Pinto The Web Application Hacker's Handbook, 2nd ed., John Wiley & Sons, 2011
- David Flanagan Javascript: The Definitive Guide, 6th Edition, O'Reilly Media Inc., 2011
- Miguel Grinberg Flask Web Development, 2nd Edition, O'Reilly Media, Inc., 2018
- Rob Larsen Beginning HTML and CSS, Wrox, 2013

ADDITIONAL BIBLIOGRAPHY

- David Flanagan jQuery Pocket Reference, O'Reilly Media, Inc., 2010
- David Wong Real-World Cryptography, Manning Publications, 2021
- Douglas Crockford JavaScript: The Good Parts, O'Reilly Media, Inc., 2008
- Martin L. Abbott, Michael T. Fisher Scalability Rules: 50 Principles for Scaling Web Sites, Addison-Wesley Professional; 1 edition , 2011
- Shameer Kunjumohamed, Hamidreza Sattari, Alex Bretet, Geoffroy Warin Spring MVC: Designing Real-World Web Applications, Packt Publishing, 2016
- Simon Harris HTML5 Unleashed, Sams, 2013