Software for Internet of the Things

Academic Year: (2023 / 2024) **Review date: 23-05-2023**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: GARCIA GUZMAN, JAVIER

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

DESCRIPTION OF CONTENTS: PROGRAMME

1.- Introduction to Software Engineering For IoT
1.1.- Principles of Software Systems Design for IoT
1.2.- Reference Architectures in IoT

2.- Key technologies for IoT
2.1.- Securization in IoT
2.2.- Kubernetes
2.3.- Data Architecture for IoT

3.- Development and deployment process for IoT
3.1.- Development process for IoT
3.2.- Deployment Technologies for IoT

LEARNING ACTIVITIES AND METHODOLOGY

FORMATIVE ACTIVITIES

AF1 - Theoretical class [23.33 hours, 100% attendance, 0,77 ECTS]
AF2 - Practical classes [25 hours, 100% attendance, 0,83 ECTS]
AF5 - Tutorials [2 hours, 25% attendance, 0,06 ECTS]
AF6 - Group work [50 hours, 0% attendance, 1,66 ECTS]
AF7 - Individual student work [79 hours, 0% attendance, 2,63 ECTS]
AF8 - Midterm and final exams [1.67 hours, 100% attendance, 0,05 ECTS*]

TEACHING METHODOLOGIES

MD1 - Lectures in the teacher's class with the support of computer and audiovisual media, in which the main concepts of the subject are developed and the bibliography is provided to complement the students' learning.

MD2 - Critical reading of texts recommended by the professor of the subject: Press articles, reports, manuals and / or academic articles, either for later discussion in class, or to expand and consolidate the knowledge of the subject.

MD3 - Resolution of practical cases, problems, etc ... raised by the teacher individually or in groups

MD4 - Presentation and discussion in class, under the moderation of the teacher, on topics related to the content of the subject, as well as practical cases

MD5 - Preparation of works and reports individually or in groups

ASSESSMENT SYSTEM

% end-of-term-examination:	25
% of continuous assessment (assigments, laboratory, practicals…):	75

SE1 [10%]
Class participation.

SE2 [60%]
Individual or group work carried out during the course.

SE3 [30%]
Final exam.

It is essential to pass the three parts separately to pass the entire course.

BASIC BIBLIOGRAPHY

- Amita Kapoor Hands-On Artificial Intelligence for IoT: Expert machine learning and deep learning techniques for developing smarter IoT systems, Packt Publishing, 2019

- Dirk Slama, Frank Puhlmann, Jim Morrish, Rishi M Bhatnagar Enterprise IoT: Strategies and Best Practices for Connected Products and Services, O'Reilly Media, 2015

- Giacomo Veneri Hands-On Industrial Internet of Things: Create a powerful Industrial IoT infrastructure using Industry 4.0, Packt Publishing, 2018

- Perry Lea Internet of Things for Architects: Architecting IoT solutions by implementing sensors, communication infrastructure, edge computing, analytics, and security, Packt Publishing, 2018

- Qusay F. Hassan Internet of Things A to Z: Technologies and Applications, Wiley-IEEE Press, 2018