Intelligent transportation systems (ITS)

Academic Year: (2023 / 2024) **Review date: 21-04-2023**

Department assigned to the subject: Systems Engineering and Automation Department

Coordinating teacher: ESCALERA HUESO, ARTURO DE LA

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

OBJECTIVES

Intelligent Transport Systems are related with the development of modern technologies that enhance the safety, efficiency and comfort, increasing the functionality of cars and roads using modern information technologies. Current works involve several levels: in-vehicle applications, infrastructure and communication applications such as vehicle to vehicle (V2V) and Vehicle to Infrastructure (V2I).
Road transport is the transport system with higher number of users. This topic deals with the main technologies applied in the so called Autonomous Vehicles, as well as the Advanced Driver Assistance Systems.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction
1.1 vehicles of the Future and Intelligent Transport Systems.
1.2 History.
2. Sensing Systems in Autonomous Systems.
2.1 Global Positioning Systems (GPS).
2.2 Long distance Sensors: Laser y radar.
2.3 Computer Vision.
3. Advanced Driver Assistance Systems.
3.1 Lane Departure Warning.
3.2 Traffic Signal Recognition System.
3.3 Pedestrian Detection Systems.
3.4 Adaptive Control Cruise.
3.5 Control Monitoring Systems.
4. Autonomous Vehicles
4.1 Context
4.2 History
4.3 Dawn of the Autonomous Vehicles
4.4 Modern Autonomous Vehicles

LEARNING ACTIVITIES AND METHODOLOGY

There will be a visit to the Intelligent System Lab to see the different researching platforms of the LSI lab.

ASSESSMENT SYSTEM

% end-of-term-examination:	0
% of continuous assessment (assigments, laboratory, practicals…):	100

According to the oral presentation and a report of a given topic, as well as the active participation in class.
In extraordinary call, the evaluation will be based on an written exam.