

FICHA TÉCNICA DE LA ASIGNATURA

Datos de la asignatura	
Nombre completo	Sistemas de asistencia y tecnología de sensores
Código	DIM-M2S-518
Cuatrimestre	Semestral
Créditos	4,5 ECTS
Carácter	Obligatoria
Departamento / Área	Departamento de Ingeniería Mecánica
Responsable	Francisco José López Valdés

Datos del profesorado	
Profesor	
Nombre	Francisco José López Valdés
Departamento / Área	Departamento de Ingeniería Mecánica
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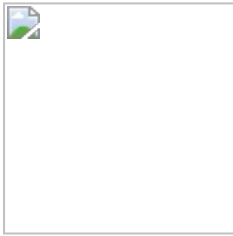
DATOS ESPECÍFICOS DE LA ASIGNATURA

Contextualización de la asignatura
Aportación al perfil profesional de la titulación
Driver assistance systems are electronic aids designed to offer the driver help in specific driving situations. They intend to increase safety and comfort of the passengers. These systems monitor the vehicle environment and either act upon the vehicle to optimize its safe functioning or provide a warning to the driver to prevent unsafe maneuvers.
Prerequisitos
Principles of vehicle dynamics Principles of fluid mechanics

Competencias - Objetivos

BLOQUES TEMÁTICOS Y CONTENIDOS

Contenidos – Bloques Temáticos



Part A – Technology: sensors and sensor integration

1. Review of technologies and main characteristics: ultrasound, cameras, radar, lidar.
2. Vehicle integration: technical and design constraints.

Part B – ADAS

1. UPA: parking assistance
2. Hand-free parking
3. Blind spot warning
4. Lane keeping (Traffic sign detection)
5. Assisted Emergency Braking

Part C- Vehicle assisted systems

1. Principles of hydraulics.
2. Industrial application of servo hydraulic systems
3. Application to steering and braking vehicle systems.

Part D –Assessment of the effectiveness of ADAS in the prevention of injuries

1. Systems that have been proved to prevent crashes and injuries
2. Systems with unknown effectiveness

METODOLOGÍA DOCENTE

Aspectos metodológicos generales de la asignatura

10% Laboratory activities (sensors)

Limitations of sensors

20% Field study (ADAS)

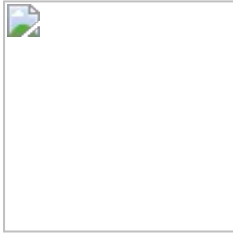
Comparison of ADAS accross different brands

70% In-class teaching

Seminars discussing the contents of the course

Article reviews

EVALUACIÓN Y CRITERIOS DE CALIFICACIÓN



GUÍA DOCENTE 2019 - 2020

Standard evaluation at the end of the term:

- 30% Quiz (including practice lab)
- 40% Field study
- 30% Paper critique

Additional evaluation during July (Retake):

- 30% Exam
- 40% Field study
- 30% Paper critique

BIBLIOGRAFÍA Y RECURSOS

Bibliografía Básica

[Rune Elvik](#), [Truls Vaa](#), [Alena Hoye](#), [Michael Sorensen](#). The Handbook of Road Safety Measures: Second Edition, Emerald Group Publishing, 2009