Course guides
820452 - ASAM - Automotive and Vehicles Safety

Unit in charge: Barcelona East School of Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering.

Degree: BACHELOR’S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).
Academic year: 2021  ECTS Credits: 6.0  Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: BENITO JAVIER LUZON NARRO

Others:
Primer quadrimestre: BENITO JAVIER LUZON NARRO - T11, T12

Segon quadrimestre: BENITO JAVIER LUZON NARRO - T11, T12

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:
1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

TEACHING METHODOLOGY

Theory sessions, individual work, team work and participatory analysis and discussion of concepts or cases will be used.

LEARNING OBJECTIVES OF THE SUBJECT

To introduce the student in the knowledge of the development process of the motor vehicle, the different configurations of vehicles, the systems and elements that make them up and their operation.
It focuses on the key concepts of technology, materials, processes, development objectives and main actors involved in the process, as well as current and future trends.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>45,0</td>
<td>30.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>15,0</td>
<td>10.00</td>
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</tbody>
</table>

Total learning time: 150 h
## CONTENTS

### UNIT 1: Introduction and General Concepts

**Description:**
Glossary of automotive terms, basic driveline and body in white configurations, historical overview, product drivers and development process

**Full-or-part-time:** 24h  
Theory classes: 12h  
Self study : 12h

### UNIT 2: Development of car body, trim and safety systems

**Description:**

**Full-or-part-time:** 29h  
Theory classes: 12h  
Laboratory classes: 5h  
Self study : 12h

### UNIT 3: Vehicle dynamics

**Description:**
Traction performance. Acceleration and braking. Steering, tires and suspension systems

**Full-or-part-time:** 23h  
Theory classes: 9h  
Laboratory classes: 5h  
Self study : 9h

### UNIT 4: Powertrain

**Description:**
Transmission systems. Engine types and driveline configurations

**Full-or-part-time:** 17h  
Theory classes: 6h  
Laboratory classes: 5h  
Self study : 6h

### UNIT 5: Future trends

**Description:**
Alternative fuel powertrain and electromobility. Megatrends in automotive industry

**Full-or-part-time:** 12h  
Theory classes: 6h  
Self study : 6h
BIBLIOGRAPHY

Basic: