Course guide
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: 2022 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>
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</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>
</tr>
</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: