820452 - ASAM - Automotive and Vehicles Safety

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering
Academic year: 2019
Degree: BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
ECTS credits: 6
Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: BENITO JAVIER LUZON NARRO
Others: BENITO JAVIER LUZON NARRO

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>Total learning time: 150h</th>
<th>Hours large group:</th>
<th>45h</th>
<th>30.00%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
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<td>Hours small group:</td>
<td>15h</td>
<td>10.00%</td>
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<td>Guided activities:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
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<td>Self study:</td>
<td>90h</td>
<td>60.00%</td>
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## Content

### UNIT 1: Introduction and General Concepts

**Learning time:** 24h  
- Theory classes: 12h  
- Self study: 12h

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

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

**Learning time:** 29h  
- Theory classes: 12h  
- Laboratory classes: 5h  
- Self study: 12h

**Description:**  

### UNIT 3: Vehicle dynamics

**Learning time:** 23h  
- Theory classes: 9h  
- Laboratory classes: 5h  
- Self study: 9h

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

### UNIT 4: Powertrain

**Learning time:** 17h  
- Theory classes: 6h  
- Laboratory classes: 5h  
- Self study: 6h

**Description:**  
Transmission systems. Engine types and driveline configurations
UNIT 5: Future trends

<table>
<thead>
<tr>
<th>Learning time:</th>
<th>12h</th>
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<tr>
<td></td>
<td>Theory classes: 6h</td>
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<tr>
<td></td>
<td>Self study : 6h</td>
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Description:
Alternative fuel powertrain and electromobility. Megatrends in automotive industry

Bibliography

Basic:


