

Course guide

330512 - AMS - Automotive, Mobility and Sustainability

Last modified: 02/06/2023

Unit in charge: Manresa School of Engineering
Teaching unit: 750 - EMIT - Department of Mining, Industrial and ICT Engineering.

Degree: BACHELOR'S DEGREE IN AUTOMOTIVE ENGINEERING (Syllabus 2017). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 3.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Albiol Rodríguez, Jordi

Others: Vives Costa, Jordi

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CE6. An adequate understanding of business concepts, the institutional and legal framework of companies, and business organisation and management.

CE14. Knowledge of and a capacity for project organisation and management. Knowledge of the organisational structures and the functions of the automobile industry.

Generical:

CG3. Knowledge of basic and technological subjects that will enable students to learn new methods and theories and that will endow them with the versatility needed to adapt to new situations.

CG7. A capacity for analysing and assessing the social and environmental impact of technical solutions.

CG10. The ability to work in a multilingual and multidisciplinary environment.

Transversal:

2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world's situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.

3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.

4. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.

5. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

6. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

7. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

1. ENTREPRENEURSHIP AND INNOVATION - Level 2. Taking initiatives that give rise to opportunities and to new products and solutions, doing so with a vision of process implementation and market understanding, and involving others in projects that have to be carried out.

08 GEN. GENDER PERSPECTIVE: An awareness and understanding of sexual and gender inequalities in society in relation to the field of the degree, and the incorporation of different needs and preferences due to sex and gender when designing solutions and solving problems.

Basic:

CB1. Students will be able to demonstrate their knowledge of a field of study that builds on secondary education and is usually found at a level that, while supported by advanced textbooks, also includes aspects that involve knowledge of the latest developments in the field of study.

CB2. Students will be able to apply their knowledge to their work or vocation in a professional manner and demonstrate that they possess the competencies that are typically demonstrated by elaborating and defending arguments and solving problems in the field of study.

TEACHING METHODOLOGY

- MD1 Master class or lecture (EXP)
- MD2 Problem solving and case study (RP)
- MD6 Large-scale project or assignment (PA)

LEARNING OBJECTIVES OF THE SUBJECT

The course aims to provide basic knowledge about the circular economy, mobility, sustainability and corporate social responsibility of the automotive world. As well as its health, economic, social and market effects in general.

The different learning objectives include:

- To know and understand the fundamentals of the circular economy and Corporate Social Responsibility.
- To know and understand the concept of sustainability and mobility.
- To know and understand the different types of vehicles and their effect on the environment and society in general.
- To know, understand and apply the management of end-of-life vehicles.

STUDY LOAD

Type	Hours	Percentage
Hours large group	30,0	40.00
Self study	45,0	60.00

Total learning time: 75 h

CONTENTS

Topic 1: Mobility and Sustainability

Description:

The concept of mobility. Road transport. Types and characteristics. Applicable legislation.

Specific objectives:

Concepts and definitions of mobility and sustainability. Current status and future prospects. Improvement and optimization.

Related activities:

Specific work on content (Activity 1).

Full-or-part-time: 15h

Theory classes: 5h

Self study : 10h



Topic 2: Electric vehicles

Description:

Electric vehicle concept. Typologies. Pure hybrids and electrics. Advantages and disadvantages. Introduction and forecast. Objectives. Necessary infrastructures.

Specific objectives:

Understanding, analysis and application of the electric vehicle concept in the automotive sector

Related activities:

Specific work on content (Activity 2).

Full-or-part-time: 15h

Theory classes: 10h

Self study : 5h

Topic 3: Vehículos de combustión. Problemática.

Description:

Pollutants generated by combustion vehicles. Degree of responsibility. Treatment technologies. Environmental and sanitation problems.

Specific objectives:

Conocer y comprender la problemática de los vehículos de combustión.

Related activities:

Specific work on content (Activity 3).

Full-or-part-time: 15h

Theory classes: 10h

Self study : 5h

Title of Content 4: End-of-Life Vehicles

Description:

Circular economy. End-of-life vehicle management regulations. Procedure. Good practices.

Specific objectives:

Fundamentals of the circular economy. Recycling, reuse, waste reduction. Management in treatment centres according to regulations.

Related activities:

Activity number 4

Full-or-part-time: 15h

Theory classes: 5h

Self study : 10h



Topic 5: Corporate Social Responsibility

Description:

Introduction to CSR. Implications. Linkages. Integration tools. Management tools.

Related activities:

Activity 5

Full-or-part-time: 15h

Theory classes: 5h

Self study : 10h

ACTIVITIES

Activity 1: Road transport

Description:

Carry out a test-questionnaire on mobility and sustainability

Specific objectives:

Development of techniques and reasoning strategies for analysis.

Written and oral communication.

Teamwork.

A third language.

Competent use of information resources.

Social commitment and sustainability.

Innovation.

Material:

On the Atenea virtual campus

Delivery:

18% of the mark

Full-or-part-time: 16h

Theory classes: 1h

Self study: 15h



Activity 2: Electric vehicles

Description:

Carry out a test questionnaire on electric vehicles.

Specific objectives:

Development of techniques and reasoning strategies for the analysis.

Written and oral communication.

Teamwork.

A third language.

Competent use of information resources.

Social commitment and sustainability.

Innovation.

Material:

On the Atenea virtual campus

Delivery:

18% of the mark

Full-or-part-time: 16h

Theory classes: 1h

Self study: 15h

Activity 3: Combustion vehicles

Description:

Carry out a test questionnaire on combustion vehicles.

Specific objectives:

Development of techniques and reasoning strategies for analysis.

Written and oral communication.

Teamwork.

A third language.

Competent use of information resources.

Social commitment and sustainability.

Innovation.

Material:

On the Atenea virtual campus

Delivery:

18% of the mark

Full-or-part-time: 16h

Theory classes: 1h

Self study: 15h



Activity 4: End-of-Life Vehicles

Description:

Carry out a work on End-of-life Vehicles

Specific objectives:

Development of techniques and reasoning strategies for analysis.
Written and oral communication.
Teamwork.
A third language.
Competent use of information resources.
Social commitment and sustainability.
Innovation.

Material:

On the Atenea virtual campus

Delivery:

18% of the mark

Full-or-part-time: 16h

Theory classes: 1h

Self study: 15h

Activity 5 title: Corporate Social Responsibility

Description:

Doing a work about CSR of a Automotive group

Specific objectives:

Development of techniques and reasoning strategies for analysis.
Written and oral communication.
Teamwork.
A third language.
Competent use of information resources.
Social commitment and sustainability.
Innovation.

Material:

On Atenea Campus

Delivery:

18% of the mark

Full-or-part-time: 11h

Theory classes: 1h

Self study: 10h

GRADING SYSTEM

Activity 1: 18% of the mark

Activity 2: 18% of the mark

Activity 3: 18% of the mark

Activity 4: 18% of the mark

Activity 5: 18% of the mark

Class attendance and participation: 10% of the mark



EXAMINATION RULES.

Students must attend 70% of the classes to pass the subject.

BIBLIOGRAPHY

Basic:

- Anfac. Anfac. Asociación Española de Fabricantes de Automóviles y Camiones: portal de transparencia [on line]. 2012 [Consultation: 19/11/2020]. Available on: <http://www.anfac.com/>.
- Sernauto. Sernauto. Asociación Española de Proveedores de Automoción [on line]. 2018 [Consultation: 19/11/2020]. Available on: <http://www.sernauto.es/>.
- Cuervo Mongui, Oscar Andrés. Diseño sostenible: una propuesta metodológica como eje de desarrollo. Saarbrücken: Editorial Académica Española, 2013. ISBN 9783659080586.
- Aguayo González, Francisco, i altres. Ecodiseño: ingeniería sostenible de la cuna a la cuna (2C2). San Fernando de Henares: RC Libros, 2011. ISBN 9788493831264.