Universidad Zaragoza

Year : 2019/20

60825 - New technologies in machines and vehicles

Syllabus Information

Academic Year: 2019/20
Subject: 60825 - New technologies in machines and vehicles
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 532 - Master's in Industrial Engineering
ECTS: 6.0
Year: 2
Semester: First semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. It promotes continuous work and focuses on the practical calculation and optimization of mechanical systems and automotive issues. A wide range of teaching and learning tasks are implemented, such as

- Lectures, where the whole group study the descriptive aspects of the systems. Design criteria, procedures and sample calculations for the different systems are covered with practical cases.
- Practice sessions to design and optimize vehicle bodies in white and components in advanced materials through the management of numerical and experimental techniques. Actual design variables are handled.
- The assessment focuses on the practical aspects of design and calculation of the studied systems. The details are described in the "Assessment" section.

4.2.Learning tasks

The course includes the following learning tasks:

- A01 **Lectures and practice sessions** (45 hours). Presentation of contents, problem-solving tasks and case studies organized by teachers and visiting experts. Description of mechanical systems and vehicles, design procedures, calculation and test procedures.
- A02 **Complementary activities** (visits to facilities, etc.) (5 hours)

- A03 **Laboratory sessions** (15 hours). Sessions with small groups of students where they work in the computer or experimental laboratory to develop skills in solving actual problems and interpretation of results. Detailed information regarding these sessions is on the web.
- A04 **Assignments**
- A05 **Autonomous work and study**
- A06 **Assessment tests**

4.3.Syllabus

The course will address the following topics:

- Section 1. New technologies in machines
- Section 2. New technologies in vehicles

4.4.Course planning and calendar

The course has 45 hours organized within 15 weeks. Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website and http://add.unizar.es

4.5.Bibliography and recommended resources