

Academic Year: (2023 / 2024)

Review date: 27-04-2023

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: DIAZ LOPEZ, VICENTE

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

OBJECTIVES

The student must acquire knowledge and skills related to the interior design of motor vehicles and railways. Acquire knowledge and skills related to chassis and body design for this type of vehicle.

Knowledge of airframes and aerodynamics. The propulsion system and its different types that currently exist on the market.

You will acquire basic technical knowledge that will allow you to formulate the dynamics of the movement of these vehicles by reproducing their behavior on the roads.

You will need to acquire design skills for these vehicles and their components using basic artistic techniques used in the industry.

It will handle with ease different types of materials used in the construction of these vehicles, including those used in surface finishes (paints, polymers, etc.)

The practices are oriented to acquire artistic skills in terms of drawing sketches, sketches and chromatic finishes of different bodies and textures that make them up.

DESCRIPTION OF CONTENTS: PROGRAMME

1. History of automobile design. Design in the automotive and art sector.
2. Typology of motor vehicles, morphology of the interior space and its influence on body design.
3. Car body design.
 - to. Design conditioned by legislation.
 - b. Design for aerodynamic efficiency.
 - c. Adaptation of the design to the technical characteristics of the propulsion system.
 - d. Materials used in bodies.
- and. Vehicle user interaction, ergonomics.
4. Body design phases
5. Design of railway vehicles: bodies, self-supporting vehicles, bogies. Concepts of railway dynamics. interior design
6. Arrangement and composition of a railway vehicle depending on the service.

LEARNING ACTIVITIES AND METHODOLOGY

Two obligatory practices will be carried out:

- 1.- Sketching of a motor vehicle
- 2.- Color and bodies.

ASSESSMENT SYSTEM

The evaluation is divided into two parts:

SE1 - Continuous evaluation that includes individual or group work, practice reports and a partial exam

SE2 - Final exam (the student who has passed the continuous assessment exam will only be examined at the end of the part of the subject that is pending examination)

% end-of-term-examination:	60
% of continuous assessment (assignments, laboratory, practicals...):	40

BASIC BIBLIOGRAPHY

- Rafael Moreno Chacón Mecánica de Motos., Amazon, 2022

- Adrian Newey. Cómo hacer un coche, Libros Cupula, 2019
- Alberto García Álvarez MANUAL DE FERROCARRILES. El sistema ferroviario español, Bellisco Virtual, 2022
- Alberto García Álvarez ARQUITECTURA Y FERROCARRIL. Tipos, Formas y Usos en la Construcción del Ferrocarril de Andalucía. , Bellisco Virtual, 2019.
- Fagone, E.L. Car design, Editorial Compositore, 2012
- Juan Antonio Andrino Cebrián MECÁNICA Y ENTRETENIMIENTO SIMPLE DEL AUTOMÓVIL. , Dirección General de Tráfico. Ministerio del Interior, 2016
- PODRO The Critical Historians of Art, New Haven: Yale University Press, 1982.
- Pilar Santos Espí Color y brillo. Medición y ajuste del color., Centro Zaragoza, 2018

ADDITIONAL BIBLIOGRAPHY

- Joseph E. Shigley DISEÑO EN INGENIERÍA MECÁNICA , Ed. McGraw-Hill, 2002.