

COURSE NAME

Name: **RAILSWAYS**

Code: 101146

Curriculum: **DEGREE IN CIVIL ENGINEERING**

Year: 4

Name of the module to which it belongs: SPECIFIC CIVIL CONSTRUCTION TECHNOLOGY MODULE

Subject: INFRAESTRUCTURA DEL TRANSPORTE

Nature: OBRIGATORY Duration: FIRST SEMESTER

ECTS Credits: 6

Classroom hours: 60

Face-to-face classroom percentage: 40%

Non-contact hours: 90

FACULTY DETAILS

Name: ZURERA DIAZ, JAVIER

Department: RURAL ENGINEERING

Area: CONSTRUCTION ENGINEERING

Location of the office: Aulario Emilio Iznerdi (EPSBelmez)

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SKILLS

- CB1 Have and understand specific knowledge of the field of study of mining engineering.
- CB2 Have and understand current and cutting-edge knowledge of the field of mining engineering.
- CB3 Be able to apply the knowledge acquired in professional contexts and to elaborate and defend arguments in the field of knowledge of mining engineering.
- CB4 Solve problems within the study area of Mining Engineering.
- CB7 Possess the learning skills necessary to undertake studies with a high degree of autonomy.
- CU2 Know and refine the user level of ITs.
- CECC5 Ability to construct and maintain railway lines with knowledge of how to apply the specific technical regulations and differentiate the characteristics of rolling stock.

OBJECTIVES

Gain knowledge of the track structure and the characteristics of the different elements comprising it, as well as introducing the main characteristics of rolling stock.

Introduce and train students in the use of the main techniques used in the design, construction, maintenance and operation of railway lines.

Knowledge of the current legislation on railway infrastructure.

CONTENTS:

1. Theoretical contents

- I. INTRODUCTION TO RAIL TRANSPORT: LEGAL FRAMEWORK.
- II. TRACK STRUCTURE: THE TRACK: GENERAL CONSIDERATIONS.
- III. TRACK MECHANICS: ACTION OF THE ROLLING STOCK ON THE TRACK.
- IV. TRACK LAYOUT AND GEOMETRY: TRACK GEOMETRY.
- V. TRACK MAINTENANCE: TRACK QUALITY AND PASSENGER COMFORT.
- VI. RAILWAY DYNAMICS: ROLLING STOCK. ELECTRIFICATION.
- VII. TECHNICAL OPERATION: STATIONS. SAFETY.
- VII. EXPLOTACIÓN TÉCNICA: ESTACIONES. SEGURIDAD.

2. Practical contents.

A number of practical problems will be set related to the theoretical background that has been taught beforehand. The number of problems will depend on the development of the course and the level of knowledge or training. The objective is to reinforce the theoretical knowledge acquired and the approach to real cases.

- Problem 1: Units of measurement in the Railway Service.
- Problem 2: The Rail. Service life and wear due to defects.
- Problem 3: Dimensioning ballast layers.
- Problem 4: Continuous Welded Rail (CWR)
- Problem 5: Track geometry: Rectifying alignments.
- Problem 6: Track geometry: Layout
- Problem 7: Railway dynamics.