29728 - Thermal Machines and Engines

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	434 - Bachelor's Degree in Mechanical Engineering
ECTS	6.0
Course	3
Period	Second semester
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

5.2.Learning activities

5.3.Program

1. Introduction to thermal engines and machinery
2. Thermodynamic cycles in internal combustion (IC) engines
3. Systems and components in IC engines. Design and performance parameters.
4. Applications and performance maps for SI engines
5. Compressible flow. Nozzles and diffusers. Jet propulsion. Rotodynamic machinery. Euler equation. Velocity

diagrams.
6. Impulse and reaction turbines. Losses in turbines.
7. Compressors: types, characteristics and selection criteria.
8. Application of thermal engines and machinery to power generation
9. Combined heat and power (cogeneration)
10. Selection and optimization of thermal engines and machinery in power generation systems

5.4.Planning and scheduling

5.5.Bibliography and recomended resources