

29713 - Technical Thermodynamics and Heat Transfer Basics

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	434 - Bachelor's Degree in Mechanical Engineering 330 - Complementos de formación Máster/Doctorado
ECTS	6.0
Course	XX
Period	Indeterminate
Subject Type	ENG/Complementos de Formación, 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

- Basic concepts: thermodynamic system, properties and state of a substance, equilibrium, reversible and irreversible processes, energy transfers (heat and work)
- Pure substance behavior: independent properties, thermodynamic surfaces, Tables of Thermodynamic properties.
- Pure substance treatment: Equation of state, ideal and real gas model, incompressible liquid model.

29713 - Technical Thermodynamics and Heat Transfer Basics

- The First Law of Thermodynamics: energy equation for a control mass
- The First Law of Thermodynamics: energy equation for a control volume
- The Classical Second Law of Thermodynamics.
- Entropy
- Gas turbine power cycles: The Joule-Brayton cycle
- Steam power cycles: The Rankine cycle
- Refrigeration cycles: The vapor-compression refrigeration cycle
- Fundamentals of psychrometry
- Introduction to heat transfer
- Introduction to conduction
- Introduction to convection

5.4.Planning and scheduling

5.5.Bibliography and recommended resources