29733 - Thermal Generation Systems

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	4
Period	First semester
Subject Type	Optional
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
2. Types of power plants

- **Conventional**

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- **Atmospheric Fluidized bed**
- **Nuclear**
- **Combined Cycles**
- **Pressurized fluidized bed**
- **Integrated Gasification Combined Cycle**
- **Organic Rankine Cycle**

3. Steam generator

- **Air-gas system**
- **Water-steam system**
- **Auxiliary equipment**

4. Control and regulation of power plants
5. Biomass and co-firing
6. Energy analysis of power plants
7. Environmental analysis of power plants
8. Analysis of industrial and aircraft gas turbines. Combustion chambers of gas turbines.
9. Characterization of the passages of rotor blades: ratio between the fluid and passages geometry.
10. Characterization of stators.
11. Design of action and reaction blades of axial turbines. Optimum operating conditions.
12. Blade design of axial compressors. Limiting factors.
13. Features of radial thermal turbomachinery.
13. Performance off-design.
14. Regulation of thermal turbomachinery.

5.4.Planning and scheduling

5.5.Bibliography and recomended resources