

Materia 4_24: Energy systems and technology

Materia:	Energy systems and technology	ECTS:	15
Descriptores	<ul style="list-style-type: none"> • Basic concepts of Nuclear Energy and Radiation. Radioactive Materials of Natural Origin (N.O.R.M.) Nuclear Reactors. Design Features. Nuclear Fuel Cycle. Nuclear Power Plant decommissioning. Technologies for radioactive waste treatment. Radioactive waste storage. • Cogeneration. Cogeneration engines. Conventional thermal power plant. Exergy analysis and optimization. General aspects. Current and future pathways. • Introduction to hydroelectric power. Fundamental equations of fluid mechanics for their application to energy transformations of hydraulic origin. Hydroelectric power stations and hydraulic turbines. Types of hydroelectric uses. Constitutive elements of a hydroelectric development. Economic aspects of medium power plants. 		
Objetivos generales	This subject has the objective of understanding real problems and acquire capacity for developments, projects and advanced studies in the field of energy engineering, with a high degree of autonomy.		
Competencia específica	CE-[4-24] - Evaluate different solutions and energy technologies in order to propose a suitable and feasible technological solution in a real situation.		
Resultados de aprendizaje	<ul style="list-style-type: none"> • Apply scientific and technological knowledge of nuclear energy to power generation. • Design parts of power plants using the knowledge acquired, and its subsequent analysis of operation. Prepare reports and projects on both conventional and combined cycle thermal power plants. Identify the fundamental maintenance parameters of the main equipment of a power plant. • Understand the concepts related to the use and management of energy of hydraulic origin and the basic principles of hydroelectric management in the global energy market. Carrying out projects and advanced studies on fluid-mechanical power plants. 		
Métodos de evaluación	<ul style="list-style-type: none"> • Evaluation: Written open-ended test and Problems • Assessment instruments: Checklists and Rating Scales • Proyecto en grupos de 2-3 alumnos. 		