Centre	**University College of Engineering of Vitoria-Gasteiz**
Name of subject	**25980 - Fundamentals of Electrical Technology**
Qualification	**Degree in Mechanical Engineering**
Type	**Compulsory**
Credits	**9 ECTS**
Year	**2**
Term(s)	**1st and 2nd**
Department	**Electrical Engineering**
Language	**Spanish and Basque**

Outcomes / Objectives

Principles of electric circuits. Direct current, alternating current. Knowledge and use of the principles of electrical machines.

Syllabus

Electrokinetics and resolution of direct current circuits. Knowledge of the different concepts and of the elements in an electric circuit, and resolution of direct current networks using the most appropriate method. Study of alternating current. Mastering of sinusoidal periodic alternating current, resolution of circuits, power triangle calculation and study of frequency variation in AC circuits and application in filter circuits. Multiphase circuits. Study and resolution, mainly of three-phase circuits, equilibrium and out-of-equilibrium systems. Introduction to electrical machines. Basic laws of electromagnetism. Industrial aspects and properties of electrical machines. Direct current machines and transformers. General concepts of direct current motors. Construction aspects. Single-phase and three-phase transformers and their connections. Synchronous and asynchronous machines. General concepts of synchronous and asynchronous motors. Testing and coupling.

Methodology

Teaching Method

Face-to-Face Teaching Hours								
Lectures	Seminars	Classroom practice	Lab. practice	Computer sessions	Clinical practice	Workshops	Industrial workshops	Field practice
63			27					
Student Hours of Non Face-To-Face Activities								
Lectures	Seminars	Classroom practice	Lab. practice	Computer sessions	Clinical practice	Workshops	Industrial workshops	Field practice
94.5			40.5					

Assessment System

General criteria

Clarification regarding assessment

Bibliography

Basic Bibliography

Theory notes and problems through reprographic service.

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In-depth Bibliography

Problemas de electrotecnia. J.Fraile Mora, ETSIT

Teoría de Circuitos Ras. Marcombo

Teoría de Circuitos. V. Parra, UNED

Teoría General de Máquinas Eléctricas. M. Cortes Cherta, J. Corrales Martín. A. Enseñat Badia

UNED- Máquinas eléctricas. Análisis y diseño aplicando Matlab. J.J. Cathey, McGraw-Hill, 2003

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