

220045 - Plug-In Hybrid Electric Vehicles. Concept, Design and Project of Electric Propulsion Systems

Coordinating unit:	205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering	
Teaching unit:	709 - EE - Department of Electrical Engineering	
Academic year:	2019	
Degree:	BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional)	
ECTS credits:	3	Teaching languages: Catalan, Spanish, English

Teaching staff

Coordinator:	ANTONIO GARCIA ESPINOSA
Others:	SANTIAGO BOGARRA RODRIGUEZ - JORDI ROGER RIBA RUIZ

Degree competences to which the subject contributes

Specific:

1. The ability to calculate and design electrical machines

Teaching methodology

The course is divided into parts:

Theory classes
Practical classes
Self-study for doing exercises and activities.

In the theory classes, teachers will introduce the theoretical basis of the concepts, methods and results and illustrate them with examples appropriate to facilitate their understanding.

In the practical classes (in the classroom), teachers guide students in applying theoretical concepts to solve problems, always using critical reasoning. We propose that students solve exercises in and outside the classroom, to promote contact and use the basic tools needed to solve problems.

Students, independently, need to work on the materials provided by teachers and the outcomes of the sessions of exercises/problems, in order to fix and assimilate the concepts.

The teachers provide the curriculum and monitoring of activities (by ATENEA).

Learning objectives of the subject

To know the technologies involved in the electrical traction systems
Electric Drive Train Design
To know the interaction between the hybrid vehicle and the electrical power system.

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Study load

Total learning time: 75h	Hours large group:	30h	40.00%
	Self study:	45h	60.00%

Content

Module 1: Electrical Propulsion Systems and Electric Drive Train Design	Learning time: 75h Theory classes: 30h Self study : 45h
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Qualification system

The final grade depends on the following assessment criteria:

- Electrical power train design: 50 %
- Final Exam: 50 %

Bibliography

Basic:

Miller, T. J. E. Electronic control of switched reluctance machines. Oxford: Newnes, 2001. ISBN 0750650737.