



Course guide

240221 - 240AU061 - Hybrid and Electric Vehicles

Last modified: 16/05/2023

Unit in charge: Barcelona School of Industrial Engineering
Teaching unit: 709 - DEE - Department of Electrical Engineering.
724 - MMT - Department of Heat Engines.

Degree: MASTER'S DEGREE IN AUTOMOTIVE ENGINEERING (Syllabus 2019). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: Bosch Tous, Ricardo

Others: Bosch Tous, Ricardo
Colaboración otros departamentos (MMT y EEI)

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

Capacity for the design and sizing of hybrid and / or electric traction plants.

STUDY LOAD

Type	Hours	Percentage
Hours large group	36,0	24.00
Hours medium group	18,0	12.00
Self study	96,0	64.00

Total learning time: 150 h

CONTENTS

Operating cycles of electrical machines and heat engines

Description:

Description and study of the behavior of the different machines under permanent and transient regimes.
Overload capacity and limit performance.

Full-or-part-time: 20h

Theory classes: 10h

Practical classes: 10h



Sources and accumulators of energy applied to electric and hybrid traction systems

Description:

Fossil and renewable energy sources.

Energy accumulation technologies.

Loading and unloading cycles and control criteria

Full-or-part-time: 20h

Theory classes: 10h

Practical classes: 10h

Load hierarchy, traction system architectures and assembly control

Description:

Load analysis: for vehicle traction, essential controls and auxiliary systems, energy surplus management.

Exhibition and analysis of different architecture configurations, depending on the desired loads, utilities and performance of the vehicle.

Criteria for the control of the different elements of the traction system.

Full-or-part-time: 14h

Theory classes: 10h

Laboratory classes: 4h

GRADING SYSTEM
