

## 340221 - VEEH-E7P09 - Electric and Hybrid Vehicles

Coordinating unit: 340 - EPSEVG - Vilanova i la Geltrú School of Engineering  
 Teaching unit: 709 - EE - Department of Electrical Engineering  
 Academic year: 2019  
 Degree: BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
 BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
 BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
 ECTS credits: 6 Teaching languages: Catalan

### Teaching staff

Coordinator: Pere Andrada Gascón

### Degree competences to which the subject contributes

Specific:

1. CE34. Ability to design electric systems and systems of traction in vehicles.

Transversal:

2. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.
3. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
4. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.

### Learning objectives of the subject

### Study load

Total learning time: 150h	Hours large group:	45h	30.00%
	Hours medium group:	0h	0.00%
	Hours small group:	15h	10.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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### Content

(ENG) Tema 1.- Introducció als vehicles elèctrics i híbrids	Learning time: 9h Theory classes: 2h Practical classes: 2h Self study : 5h
(ENG) Tema 2.- Classificació i constitució dels vehicles elèctrics i híbrids	Learning time: 7h Theory classes: 2h Self study : 5h
(ENG) Tema 3.- Conceptes bàsics sobre vehicles elèctrics i híbrids	Learning time: 21h Theory classes: 2h Practical classes: 4h Self study : 15h
(ENG) Tema 4.- Fonts d'energia	Learning time: 32h Theory classes: 10h Practical classes: 2h Self study : 20h
(ENG) Tema 5.- Cadenes de tracció. Accionaments per vehicles elèctrics i híbrids	Learning time: 32h Theory classes: 8h Practical classes: 4h Self study : 20h
(ENG) Tema 6.- Infraestructures per vehicles elèctrics i híbrids	Learning time: 15h Theory classes: 4h Practical classes: 2h Guided activities: 4h Self study : 5h

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(ENG) Simulació de VE i VEU/ Projecte	Learning time: 34h Laboratory classes: 14h Self study : 20h
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### Bibliography

#### Basic:

Husain, Iqbal. Electric and hybrid vehicles : design fundamentals. Boca Raton: CRC Press, 2011. ISBN 9781439811757.

Larminie, James; Lowr, John. Electric vehicle technology explained [on line]. Chichester, West Sussex, England ; Hoboken, NJ: J. Wiley, 2003 [Consultation: 26/07/2019]. Available on:  
<<https://onlinelibrary.wiley.com/doi/book/10.1002/0470090707>>. ISBN 0470851635.

Chan, C. C.; Chau, K. T. Modern electric vehicle technology. New York: Oxford, 2001. ISBN 0198504160.

Emadi, Ali. Advanced electric drive vehicles. Boca Raton, FL: CRC Press, 2015. ISBN 9781466597693.

El vehículo eléctrico: desafíos tecnológicos, infraestructuras y oportunidades de negocio. Barcelona: Librobooks, 2011. ISBN 9788493891008.