



## Course guides

### 230107 - EA - Automobile Electronics

Last modified: 29/04/2020

**Unit in charge:** Barcelona School of Telecommunications Engineering  
**Teaching unit:** 739 - TSC - Department of Signal Theory and Communications.  
710 - EEL - Department of Electronic Engineering.

**Degree:** BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Optional subject).  
BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).

**Academic year:** 2020    **ECTS Credits:** 6.0    **Languages:** Catalan, Spanish

#### LECTURER

**Coordinating lecturer:** Silva Martinez, Fernando

**Others:** Silva Martinez, Fernando  
Ramos Castro, Juan Jose

#### PRIOR SKILLS

Electronic components, circuits and systems. Electronic Instrumentation.

#### TEACHING METHODOLOGY

#### LEARNING OBJECTIVES OF THE SUBJECT

Analyze the electronic systems that incorporate current cars, study their particular requirements and meet new applications currently being developed for future cars.

The course is developed with the advice of several companies in the automotive industry, who taught some theoretical contents.

#### STUDY LOAD

Type	Hours	Percentage
Hours large group	26,0	17.33
Hours small group	26,0	17.33
Self study	98,0	65.33

**Total learning time:** 150 h



## CONTENTS

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### Introduction

**Description:**

Introduction to the automotive electronics including the bus CAN

**Full-or-part-time:** 12h

Theory classes: 12h

### Automotive project

**Description:**

Definition, development and presentation of an automotive electronics hardware and software project

**Full-or-part-time:** 28h

Theory classes: 28h

### Electronic automotive systems

**Description:**

Automotive electronic development management

Automotive Electromagnetic Compatibility

Hybrid and electrical vehicles

Fleet management

ADAS systems

Drive by Wire

**Full-or-part-time:** 12h

Theory classes: 12h

## GRADING SYSTEM

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Lessons 3 credits

- Work (content and presentation): 20%

- Final exam (test): 30%

Project 3 credits

- Laboratory work: 30%

- Final exam (issue): 20%

## BIBLIOGRAPHY

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**Basic:**

- Mizutani, S. Car electronics. 2nd ed. Nippondenso; Sankaido, 1992. ISBN 4381100433.

- Ribbens, W.B. Understanding automotive electronics. 6th ed. Amsterdam [etc.]: Newnes, 2003. ISBN 0750675993.

**Complementary:**

- Denton, T. Automobile electrical and electronic systems. 5th ed. Milton Park, Abingdon, Oxon: Routledge, 2017. ISBN 9780415725774.

## RESOURCES

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**Other resources:**

Internet information