



# Course guide

## 820126 - IEBAT2EE - Low and High Voltage Electrical Installations II

Last modified: 05/07/2024

**Unit in charge:** Barcelona East School of Engineering  
**Teaching unit:** 709 - DEE - Department of Electrical Engineering.  
**Degree:** BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Compulsory subject).  
**Academic year:** 2024    **ECTS Credits:** 6.0    **Languages:** Catalan, Spanish

### LECTURER

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**Coordinating lecturer:** JUAN MORÓN ROMERA

**Others:**

Primer quadrimestre:  
EDORTA LÓPEZ URZAINQUI - Grup: T11, Grup: T12, Grup: T13  
JUAN MORÓN ROMERA - Grup: T11, Grup: T12, Grup: T13

Segon quadrimestre:  
JUAN MORÓN ROMERA - Grup: M11, Grup: M12, Grup: M13

### REQUIREMENTS

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INSTAL·LACIONS ELÈCTRIQUES DE BAIXA I ALTA TENSIÓ I - Prerequisit

### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

1. Carry out calculations for the design of high voltage electrical installations.
2. Carry out calculations for the design of low and medium voltage electrical installations.

**Transversal:**

4. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

### TEACHING METHODOLOGY

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Magistral classes for theory sessions, individual and group work, and project based learning.

### LEARNING OBJECTIVES OF THE SUBJECT

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- To show how design high voltage electrical installations.
- To show the use of Standards and Regulations for electrical installations.
- To show the main elements of an installation (functionality, characteristics of operation, main applications)
- To show how draw an electrical diagram and its symbols.
- To analyze the causes of faults, its effects and protection methods.
- To show methodology for design, sizing and optimization the elements for a high voltage electrical installation.



## STUDY LOAD

Type	Hours	Percentage
Self study	90,0	60.00
Hours large group	45,0	30.00
Hours small group	15,0	10.00

**Total learning time:** 150 h

## CONTENTS

### Unit 1. Electrical Installation for High Voltage: Generalities.

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

Theory classes: 3h

Self study : 9h

### Unit 2. Electrical Calculations Techniques.

**Full-or-part-time:** 35h

Theory classes: 12h

Laboratory classes: 4h

Self study : 19h

### Unit 3. Main elements for HV installations

**Full-or-part-time:** 21h

Theory classes: 9h

Self study : 12h

### Unit 4. Protective Relays

**Full-or-part-time:** 15h

Theory classes: 6h

Self study : 9h

### Unit 5. Ground installation

**Full-or-part-time:** 19h

Theory classes: 4h 30m

Laboratory classes: 4h

Self study : 10h 30m



### Unit 6. Distribution Installation

**Full-or-part-time:** 25h  
Theory classes: 4h 30m  
Laboratory classes: 3h  
Self study : 17h 30m

### Unit 7. Substation Installation

**Full-or-part-time:** 23h  
Theory classes: 6h  
Laboratory classes: 4h  
Self study : 13h

## GRADING SYSTEM

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Middle term exam: 20%  
Class exercises:10%  
Homework:10%  
Laboratory work:20%  
Self Study:10%  
Final test: 30%  
No proof of reassessment.

## EXAMINATION RULES.

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Timetable established by school

## BIBLIOGRAPHY

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**Basic:**

- Enríquez Harper, Gilberto. Elementos de diseño de subestaciones eléctricas. 2a ed. México [etc.]: Limusa, cop. 2004. ISBN 9789681862220.