

Course guide 820125 - IEBAT1EE - Low and High Voltage Electrical Installations I

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Last modified: 28/01/2025

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

JORGE EL MARIACHET CARREÑO		
Primer quadrimestre: JORGE EL MARIACHET CARREÑO - Grup: M11, Grup: M12, Grup: M13 JORDI VII ANOVA RODRIGUEZ - Grup: M11, Grup: M12, Grup: M13		
	JORGE EL MARIACHET CARREÑO Primer quadrimestre: JORGE EL MARIACHET CARREÑO - Grup: M11, Grup: M12, Grup: M13 JORDI VILANOVA RODRIGUEZ - Grup: M11, Grup: M12, Grup: M13	

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

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4. Carry out calculations for the design of low and medium voltage electrical installations. CEELE-22. Carry out calculations for the design of high voltage electrical installations.

Transversal:

SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

TEACHING METHODOLOGY

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

LEARNING OBJECTIVES OF THE SUBJECT

-To show how design low 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 simbols.
- To analyze the causes of faults, its effects and protection methods.
- To show methodology for design, sizing and optimization the elements for a low voltage electrical installation.

STUDY LOAD

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



Total learning time: 150 h

CONTENTS

Unit 1. Low Voltage Electrical Installations: Generalities

Full-or-part-time: 6h Theory classes: 3h Self study : 3h

Unit 2. Interior installations for houses

Full-or-part-time: 22h Theory classes: 3h Laboratory classes: 2h Self study : 17h

Unit 3. Industrial Automation: Fundamentals

Full-or-part-time: 17h Theory classes: 4h 30m Laboratory classes: 4h Self study : 8h 30m

Unit 4. Electrical power and Energy

Full-or-part-time: 14h Theory classes: 3h Laboratory classes: 1h Self study : 10h

Unit 5. Grid connection: Regulations.

Full-or-part-time: 21h Theory classes: 4h 30m Self study : 16h 30m

Unit 6. Conductor Sizing

Full-or-part-time: 9h Theory classes: 4h 30m Self study : 4h 30m

Unit 7. Power Quality

Full-or-part-time: 3h Theory classes: 1h 30m Self study : 1h 30m



Unit 8. Protection elements

Full-or-part-time: 16h Theory classes: 6h Laboratory classes: 2h Self study : 8h

Unit 9. Ground connection

Full-or-part-time: 13h Theory classes: 4h 30m Laboratory classes: 2h Self study : 6h 30m

Unit 10. Interior or Load installations

Full-or-part-time: 20h Theory classes: 6h Laboratory classes: 4h Self study : 10h

Unit 11. Shortcircuit analysis

Full-or-part-time: 9h Theory classes: 4h 30m Self study : 4h 30m

GRADING SYSTEM

Middle term exam: 20% Class exercises:10% Homework:15% Laboratory work:15% No proof of reassessment. Self Study:10% Final test: 30%

EXAMINATION RULES.

Timetable establised by school

BIBLIOGRAPHY

Basic:

- Schmelcher, Theodor; Guillén, Jorge. Manual de baja tensión : indicaciones para la selección de aparatos de maniobra, instalaciones y distribuciones. Berlin; Munich: Siemens-Aktiengesellschaft, [Abt. Verl.], 1984. ISBN 3800913976.

- Espanya. Reglamento electrotécnico para baja tensión e instrucciones técnicas complementarias. 3ª ed. Madrid: Liteam, cop. 2002. ISBN 8495596318.



RESOURCES

Audiovisual material:

- Atenea