

Course Unit	Electrical and Telecommunications Infrastructures			Field of study	Energy Systems		
Bachelor in	Electrical and Computers Engineering			School	School of Technology and Management		
Academic Year	2022/2023	Year of study	2	Level	1-2	ECTS credits	6.0
Туре	Semestral	Semester	1	Code	9112-742-2103-00-22		
Workload (hours)	162	Contact hours		30 PL 24 To nd problem-solving; PL - Problem-	C 4 S 2 solving, project or laboratory; TC -		- O - ment; OT - Tutorial; O - Other

Name(s) of lecturer(s)

Orlando Manuel de Castro Ferreira Soares

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

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 I. Know electrical wiring materials, apparatus and rules for the conception of electrical installations in buildings;
 Z. Know sizing and protection rules of wirings;
 Interpret and execute projects of private and public service electrical installations of various categories;
 Know the rules for project, installation and management of telecommunication infrastructures in buildings (ITED);
 Organize, orient and perform, under supervision, installation, maintenance and repair, as well as others, for ITED.

Prerequisites

Before the course unit the learner is expected to be able to: None.

Course contents

Electrical installations of utilisation; Installations in special locations; Installations in storage and parking spaces; Security protections; Collective installations and entries; Verification of electrical installations; Field work/site visit; Development of electrical installations projects and communication networks and telecommunication infrastructures in buildings; Domotic installations and structural networks.

1. Electrical installations of utilisation

Course contents (extended version)

- Electrical installations of utilisation

 Conception, structures and characteristics of electrical wirings.
 Equipment and electrical apparatus selection. Electrical board.
 Feeding, evaluation and power balancing. Energy metering

 Installations in special locations

 Installations in comping, marinas, construction sites, agricultural or livestock establishments

 Installations in storage and parking locations

 General electrical wiring
 Feeding and circuits
- Feeding and circuits
 Protections for security
- Installations protections for over-currents and electrical shocks
 Protections for atmospheric over-voltages
 Collective installations and entries
- Structure, wings, boxes and boards
 Sizing and protections
 Electrical installations verifications and technicians duties
- 7. Field work/site visit
- Organization, interpretation and execution of electrical installation projects
 Constituent parts of an infrastructures electrical project.
- Proceedings
 Written parts (general special Descriptive Memory and Technical Conditions) and drawn parts.
 Communication networks and telecommunication infrastructures in buildings
 Prescriptions and technical specifications ITED
- The ITED project
- Running tests and report writing and features. The Construction Book.
 Domotic installations and structural networks
 Conception and installations of common systems. The EIB system.

 - Conception of solutions for structural wiring

Recommended reading

- Regras Técnicas das Instalações Eléctricas de Baixa Tensão, Portaria nº 949-A/2006 de 11 de Setembro
 Manual ITED, ANACOM, 3ª ed., 2015
 Textos de apoio, cópias de lições e de acetatos Silva, Joaquim Tavares, 2009. Instalações Eléctricas e de Comunicações, ESTIG
 Guia Técnico das Instalações Eléctricas, CERTIEL, 2007.
- 5. Fichas técnicas, CERTIEL

Teaching and learning methods

Tutoric classes: presentation of concepts related to different content; application of expository and interrogative; resolution of exercises and worksheets; frequent use of catalogs and tables of manufacturers, conducting study visits and technical sessions.

Assessment methods

- Alternative 1 (Regular, Student Worker) (Final, Supplementary, Special)

 Projects 60% (Projects developed in classroom and non-classroom classes, with discussion and presentation.)
 Final Written Exam 40% (Minimum required values of 7 (on a scale of 20 values) for approval to the unit.)

 Alternative 2 (Regular, Student Worker) (Special)

 Final Written Exam 100%

Language of instruction	
Portuguese	

Electronic validation		
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14-10-2022	16-10-2022	24-10-2022