

High voltage switchgear and power lines

Academic Year: (2022 / 2023)

Review date: 24-05-2021

Department assigned to the subject: Electrical Engineering Department

Coordinating teacher:

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Electrical power engineering fundamentals

OBJECTIVES

1. Ability to complete a power line project, according to the Spanish regulations.
2. Basic knowledge of the switchgear used in electric substations.
3. Ability to use technical documents related to power systems such as regulations and standards.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Overhead line project.
2. Naked conductors.
3. Electric parameters in power lines.
4. Power line models.
5. Propagation of electromagnetic waves in power lines.
6. Thermal limit.
7. Insulators in overhead lines.
8. Corona effect.
9. Sagging.
10. Pylons and electric distances.
11. Earthing.
12. High Voltage DC lines.
13. Live works.
14. Classification of switchgear.
15. High voltage instrument transformers.
16. Configuration of substations.
17. Substation planes.

LEARNING ACTIVITIES AND METHODOLOGY

- Master classes.
- Resolution of numerical examples in the classroom.
- Project of an overhead power line.

ASSESSMENT SYSTEM

ORDINARY CALL:

Continuous evaluation:

- Questions and exercises in classroom
- Project of an overhead line

or

Final exam

CONVOCATORIA EXTRAORDINARIA:

Final Exam

% end-of-term-examination:	0
% of continuous assessment (assignments, laboratory, practicals...):	100

BASIC BIBLIOGRAPHY

- Bacigalupe Camarero, Fernando Líneas aéreas de media y baja tensión : cálculo mecánico, Paraninfo.
- Checa L.M. Líneas de transporte de energía, Marcombo Boixareu Editores, 1988
- Ministerio de Industria, Turismo y Comercio Reglamento sobre condiciones técnicas y garantías de seguridad en líneas de alta tensión : Real Decreto 223/2008, de 15 de febrero. BOE, BOE.
- Moreno Clemente, Julián Cálculo de líneas eléctricas aéreas de alta tensión, Moreno, J..
- Pascual Simón, Fernando Garnacho, Jorge Moreno, Alberto González Cálculo y diseño de líneas eléctricas de alta tensión, Garceta, 2011
- Tora Galván J.L. Transporte de la Energía Eléctrica, Universidad Pontificia de Comillas, 1997