

DIE-GITI-433 Power System Protection

SEMESTER: Spring

CREDITS: 6 ECTS (4 hrs. per week: 3 Theory + 1 Lab, on average)

LANGUAGE: Spanish

DEGREES: GITI

Course overview

The protection system is a key component of a power system. Power lines, generators, transformers and motors have to be protected against a number of faults. In this course, protection systems of power system components are studied. Moreover, commercial protections are tested in the lab.

Prerequisites

Knowledge of power system and circuits fundamentals.

Basic knowledge of electric machines.

Course contents

Theory:

1. Principles of protection systems
2. Protection of distribution networks
3. Protection of power transformers
4. Protections of transmission networks
5. Protections of bus bars
6. Protection of generator
7. Protection of motors

Laboratory:

- P1. Introduction.** Test equipment PT-50-CET.
 - P2. Protection of distribution networks.** AREVA MiCON P125/P126/P127.
 - P3. Protection on power transformers.** General Electric T345.
 - P4. Protection of transmission networks.** AREVA MiCOM 543/P544/P545/P546.
 - P5. Protection of generators.** General Electric G60.
- Exam

Textbook

- P. Montané, “Protecciones en las Instalaciones Eléctricas: Evolución y Perspectivas”, Segunda Edición, Marcombo, Barcelona, 1993

Grading

The following conditions must be accomplished to pass the course:

- A minimum overall grade of at least 5 over 10 in the ‘Theory’ part.
- A minimum overall grade of at least 5 over 10 in the ‘Laboratory’ part

The overall grade is obtained as follows: 80% theory grade + 20% Lab. Grade.

- Theory: Final exam 70% + short exams 30%
- Laboratory: Final exam 50% + 50% performance during the lab sessions.