

Academic Year: ( 2023 / 2024 )

Review date: 08-06-2023

Department assigned to the subject: Electrical Engineering Department

Coordinating teacher: MORENO LOPEZ DE SAA, MARIA ANGELES

Type: Additional training ECTS Credits : 3.0

Year : 0 Semester : 1

## REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Basic knowledge about the analysis of linear single-phase and balanced three-phase ac circuits

## OBJECTIVES

The purpose of these training supplements is to provide adequate knowledge of Electrical Engineering that, due to the previous training of some students, has not been acquired.

The specific objectives are:

- Know the structure of an electrical system and the equipment that composes it.
- Know the basic types of analysis of electrical systems (power flow, short circuits, transient stability) and use commercial tools to carry out these types of analysis.
- Know the principles of control of the fundamental parameters of an electrical system: frequency and voltage.

## DESCRIPTION OF CONTENTS: PROGRAMME

0. Introduction and basics.
  1. Per-unit quantities.
  2. Load-flow solutions and control.
  3. Symmetrical three-phase faults.
  4. Power system stability.
  5. Frequency control and voltage control.

The sessions corresponding to topics 2 to 4 include practices with commercial electrical system simulation programs (PowerWorld Simulator or similar).

## LEARNING ACTIVITIES AND METHODOLOGY

- Magisterial classes, tutorship and personal work oriented to the acquisition of theoretical knowledge.
- Problems solution classes, computer sessions, tutorship and personal work oriented to the acquisition of practical skills

## ASSESSMENT SYSTEM

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

It is based on online quizzes, and exercises and personal work.

## BASIC BIBLIOGRAPHY

- Grainger & Stevenson Power System Analysis, McGraw-Hill, 1994

- Gross Power System Analysis, John Wiley & Sons, 1986
- Saadat Power System Analysis, McGraw-Hill, 1999
- Stevenson Elements of power system analysis, McGraw-Hill, 1982