COMPATIBILITÉ ÉLECTROMAGNÉTIQUE DES SYSTÈMES DE PUISSANCE ET INTERACTION

ELECTROMAGNETIC COMPATIBILITY OF POWER SYSTEMS, INTERACTION WITH

Lecturers: Christian VOLLAIRE

| Lecturers : 12.0 | TC : 4.0 | PW : 4.0 | Autonomy : 0.0 | Study : 8.0 | Project : 0.0 | Language : FR

Objectives

The massive use of telecommunications and electrical energy conversion systems leads to having to take into consideration the "electromagnetic pollution" linked to human activity, the objective being safety (electromagnetic cohabitation). With the development of increasingly autonomous devices (renewable energies, cars, drones), electromagnetic access routes (waves, cables, etc.) have become potential inputs for signals aimed at disrupting operation or even taking control of the target. We can also mention the problems of exposure of people to electromagnetic fields from human activities that must be controlled.
The objectives are : presentation of sources of disturbances, couplings, failures of complex systems and

Keywords : Electromagnetic compatibility, natural sources of disturbances and those linked to human activity (intentional or not), couplings, victims, exposure to electromagnetic waves, countermeasures, modeling, measurement techniques, standards

Programme

1 The issue of EMC
2 Electromagnetic fields and propagation
3 Sources of disturbance (natural origin, human origin, intentional or not)
4 Study of conducted and radiated coupling modes
5 Current studies and testing
6 Methods of prevention and protection
7 Electromagnetic fields and biological systems

Learning outcomes

- At the end of this course, students will be able to analyze EMC phenomena in complex systems, to propose analysis methods and solutions. They will be able to discuss with experts in the field through knowledge of the EMC vocabulary, the phenomena at work, the normative constraints and the usual solutions.

Independent study

Objectifs : This activity is not concerned with framed autonomy activities outside personal work.

Méhodes : This activity is not concerned with framed autonomy activities outside personal work.

Core texts

P. Degauque, J. Hamelin , *COMPATIBILITÉ ELECTROMAGNÉTIQUE* , Dunod, 1990
R. Perez *HANDBOOK OF ELECTROMAGNETIC COMPATIBILITY* , Lavoisier
Yvon Mori*COMPATIBILITÉ ELECTROMAGNÉTIQUE*, Hermes Lavoisier, Paris, 2007

Assessment

Score = 70% knowledge + 30% practical work
Knowledge score = 100% final exam + 0% continuous evaluation
practical work score = = 100% final exam + 0% continuous evaluation