Università degli Studi di Catania
Dipartimento di Ingegneria Elettrica, Elettronica e Informatica (DIEEI).

CORSO DI LAUREA MAGISTRALE
Elettrical Engineering
a.a. 2014-2015

Course of
Industrial Electromagnetic Compatibility

(2° anno - 1° semestre - 6 crediti)

Description and objectives
The industrial electromagnetic compatibility is based on the study of the effects of environment electromagnetic fields created by electrical devices and design of systems to reduce their impact on themselves, on other devices or on human beings.
The aim of the course is to introduce the students to analytical models and technical aspects related to electromagnetic compatibility (EMC): radiated and conducted emissions, crosstalk, electromagnetic shielding, EMC governmental European requirements for commercial products, EMC measurements for verification of compliance, system design for EMC.

Contents
Introduction to Electromagnetic Compatibility (EMC).
EMC Requirements for Electronic Systems.
Electromagnetic fields theory.
Transmission Lines and Signal Integrity.
Antennas.
Introduction to the Finite Element method for simulating 3-D full-wave electromagnetic fields.
Non-ideal Behavior of Components.
Signal Spectra.
Radiated Emissions and Susceptibility.
Conducted Emissions and Susceptibility.
Crosstalk.
Shielding.
Electrostatic discharges.
System Design for EMC.
Laboratory: numerical simulations, EMC measurements.

Texts
1) Paul Clayton R., Introduction to ELECTROMAGNETIC COMPATIBILITY 2nd ed.,
WILEY.
2) Paul Clayton R., COMPATIBILITA' ELETTROMAGNETICA, HOEPLI Ed.

Class attendance
Not compulsory.

Final examination.
Oral exam. E-mail booking.

Course web site:
http://pc1esg.diees.unict.it/esg/didattica/emc/el/index.html

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