



# UNIVERSITY OF NICOSIA ΠΑΝΕΠΙΣΤΗΜΙΟ ΛΕΥΚΩΣΙΑΣ

University of Nicosia, Cyprus

<b>Course Code</b> ECE-543	<b>Course Title</b> Electromagnetic Compatibility/ Electromagnetic Interference	<b>ECTS Credits</b> 8
<b>Department</b> Engineering	<b>Semester</b> Fall or Spring	<b>Prerequisites</b> ECE-342
<b>Type of Course</b> Elective	<b>Field</b> Engineering	<b>Language of Instruction</b> English
<b>Level of Course</b> 2 <sup>nd</sup> Cycle	<b>Year of Study</b> 1 <sup>st</sup>	<b>Lecturer</b> Dr John Sahalos
<b>Mode of Delivery</b> Face-to-face	<b>Work Placement</b> N/A	<b>Co-requisites</b> None

## Objectives of the Course:

The main objectives of the course are to:

- Design of electric and electronic devices and equipment in a manner that makes them immune to electromagnetic interference (EMI)
- Design of electric and electronic devices and equipment in a manner that makes keeps them generated interference within specified limits
- Provide in depth the principles of Regulatory Authorities & Standards
- Analyze of the near and far field characteristics
- Provide in depth the shielding principles
- Provide in depth the design rules
- Give details for special topics

## Learning Outcomes:

After completion of the course students are expected to:

- Demonstrate knowledge and understanding of EMC/EMI
- Explain the type of Standards and the Authorities
- Analyze problems of Immunity
- Analyze problems of Interference
- Apply principles in electronic device design
- Analyze topics of current interest

## Course Contents:

- Description and Classification of main sources of Electromagnetic Interference
- Quantities and parameters for EMC control
- Standards and directives
- Methods and techniques of interference control
- Shielding - Grounding - Filtering-shielding from static fields (magnetic-electric) and from dynamic EMF
- Shielding devices (metal cavities) with walls bearing various types of openings (modeling techniques and design)

- EMC measurements
- Installation and instrumentation requirements - measuring equipment specifications and limits
- Outdoor measurements facilities (OATS) and chambers (anechoic, TEM, GTEM, reverberation)
- Measurements of radiated and conductive interference
- Measurements of Immunity to fields, currents, pulses and discharges
- Projects on EMC/EMI. Computer simulations using software packages and comparison of the results with the international literature

**Learning Activities and Teaching Methods:**

Lectures, in-class examples and exercises

**Assessment Methods:**

Homework, midterm exam, final exam.

**Required Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN
Ch. Christopoulos	Principles and Techniques of Electromagnetic Compatibility	CRC Press	2007	0849370353

**Recommended Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN
V. Prasad Kodali	Engineering Electromagnetic Compatibility (Principles, Measurements, Technologies and Computer Models) , 2 <sup>nd</sup> Ed	IEEE Press	2001	8121919851