

Electromagnetic compatibility



Component
École Nationale
Supérieure
d'Électrotechnique
d'Électronique

In brief

- > **Amety's Code:** N9EE29C
- > **Open to exchange students:** Yes

Presentation

Objectives

Gain an understanding of the field of Electromagnetic Compatibility (EMC), its formalisms, methodologies, and analysis and measurement techniques.

Be able to analyze cases of conducted and radiated emissions.

Be able to analyze cases of susceptibility and immunity, both conducted and radiated.

Identify EMC coupling scenarios, differential and common modes, and the distinctions between near-field and far-field.

Be able to propose mitigating and/or preventive solutions: filtering, shielding, redesign

Description

Theoretical Section:

I - Overview of Electromagnetic Compatibility

II - Techniques and Tools for EMC Investigations

III - Methodologies and Techniques for Reducing EMC Risks

Applied Section/Practical Work:

-Summary/Applications: 7 EMC case studies on the architectures and electronic boards of an embedded mechatronic system.

-Comprehensive EMC analysis of an autonomous mobile system

-Emission spectra of power circuits

-Immunity cases for control circuits and sensors

Pre-requisites

Analog and Digital Electronics, RF and Microwave Electronics

Electromagnetism and Propagation Phenomena in Free Space and Guided Waves

Component Physics, Integrated Circuits, Packaging, Printed Circuit Boards (PCBs)

Power Electronics and Converters