

# Internet of Things



Component  
École Nationale  
Supérieure  
d'Électrotechnique  
d'Électronique

## In brief

- > **Ametys Code:** N9EE06D
- > **Open to exchange students:** Yes

## Presentation

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### Objectives

To gain a clear understanding of the role of electronic systems in IoT. To become familiar with the ISO/IEC 14443 standard as an illustration of IoT, and its requirements for the design and implementation of its physical layer.

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### Description

- 1) General information on IoT: History and evolution – architecture – applications
  - 2) Data in IoT: Encoding – Modulation – Data integrity – Data security – choices based on applications
  - 3) Examples of IoT systems: NFC (Frequency/range/application – NFC standards – Example ISO/IEC14443 – Solutions offered by NXP)
  - 4) Physical layer and examples of electronic design: inductive coupling circuit for HF applications – power supply issues for passive tags – antenna adaptation – power balance
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### Pre-requisites

Analog/digital/radio frequency electronic signals

Signal coding and modulation

Analog and radio frequency circuits

Electromagnetism/S parameters/Antenna adaptation