

UGent Campus Kortrijk - Lemcko and the INCASE project invite you for a study day on:

Combining Power and Data

Power-over-Ethernet and Power Line Communication: standards and technologies

February 20th 2019

UGent Campus Kortrijk

Smart technologies need both power and communication. Is combining power and data in one cable a feasible and robust solution for your application? In this half day of lectures, three technologies are discussed: Power-over-Ethernet (POE), Power Line Communication (PLC) and Bluetooth Low Energy (BLE). The basic ideas, needed technology and standardisation are explained.

Programme (English spoken)

12h30 **Sandwiches**

13h20 **Introduction: The INCASE project** – Jos Knockaert – Professor UGent Campus Kortrijk

13h30 **Ethernet: The physical layer explained** – Frederic Depuydt – Project Engineer INCASE, KU Leuven Technologiecampus Gent

The visual components and basic properties of the 100BASE-TX physical layer for industrial use of wired ethernet, the “invisible” signal coding (4B/5B, scrambling, MLT3) and actual voltage signals on the copper wires, and a number of industrially relevant signal and packet measurement methods are explained. Actual measurements in PROFINET industrial networks illustrate the discussed signal properties and visualize the bits, bytes and messages.

14h00 **Power over Ethernet: New features and capabilities** – Joris Lemahieu – Application Engineer ON Semiconductor

Power over Ethernet (PoE) enables the delivery of power to IP network devices via existing Ethernet cables. The new 802.3bt standard increases the amount of power available for devices to 90W, enabling a myriad of new applications.

14h45 Break

15h15 **Power Line Communications (PLC): From fundamentals to applications** – Véronique Moeyaert – Professor Université de Mons – Faculté Polytechnique

The PLC field of telecommunication engineering is progressing towards maturity. This presentation proposes a review of fundamentals technologies and standards that enable its implementation. A survey of present and future applications is also presented.

16h00 **Power Line communication from an EMC viewpoint** – Jos Knockaert – Professor UGent Campus Kortrijk – Lemcko

PLC is both source and victim of electromagnetic interference. This lecture looks into the world EMC-standardisation related to both narrowband- and broadband-PLC.

16h30 **Power and data in the wireless world** – Franck Gaultier – R&D Project Manager CITC

Several topics will be discussed in this lecture. Qi standard (Wireless charging standard), RFID and EnOcean (combining RF and energy harvesting). Finally, Bluetooth Low Energy is introduced and compared to EnOcean .

17h00 **Reception**

Practical information

Location:

Raadzaal, UGent Campus Kortrijk

Graaf Karel de Goedelaan 5

8500 Kortrijk

Price: free

Subscribe? Use this link: [subscribe](#)

or

Mail to: fleur.ghekiere@ugent.be (mention name, company and if you will join lunch)

Contact: lemcko@ugent.be - 056 / 24 12 35