



# DSP & Embedded System Lab



## Description

The **Embedded Systems Laboratory (ESL)** focuses on the definition of system-level multi-objective design methods, optimization methodologies, and tools for high-performance embedded systems and nano-scale Multi-Processor System-on-Chip (MPSoC) architectures targeting the Internet-of-Things (IoT) Era. The main research lines within the ESL activities include, but are not restricted to, the following topics:

- Thermal and reliability exploration frameworks and management approaches for MPSoCs and embedded systems, both at micro architectural and system level.
- System-level design and optimization approaches for IoT, with particular emphasis on edge computing and wireless body sensor networks.
- Exploration of synergies between hardware and software components to exploit design trade-offs (area, performance, power) in MPSoC architectures.
- New techniques for memory hierarchy optimization, on-chip interconnects, and the design of dynamic memory management mechanisms in multimedia SoC platforms.

**Digital signal processing (DSP)** is the **process** of analyzing and modifying a **signal** to optimize or improve its efficiency or performance. It involves applying various mathematical and computational algorithms to analog and **digital signals** to produce a **signal** that's of higher quality than the original **signal**

## Equipment

DELL 7460 All in One

SMARTBOARD

PROJECTOR

IP PHONE

## Software

PICO TECHNOLOGY

ARDUINO

MATLAB

## Courses

COEN 3323: Digital Systems

EEEN4331: Microprocessors

COEN 4322: Digital Signal Processing