ESIROI
ÉCOLE D'INGÉNIEURS
UNIVERSITÉ DE LA RÉUNION

DEPARTMENT : *IT*
SEMESTER : *S7*

IDENTIFICATION

Course code : ESI-SPI-CI-IN4-S7-UE2-EC2
ECTS : 2

DURATION

Lectures :	4
Tutorial classes :	0
Labs :	2
Total :	6

Project :
Personnal work :

ASSESSMENT

Skills will be assessed based on deliverables provided, in line with the expectations described in the evaluation grids.

TEACHING MATERIALS

All documents used during teaching sessions and resources mobilized by the SAE. IoT hardware platforms (ESP32, Raspberry Pi, sensors).

LANGUAGE

English

CONTACT

Exploit an IoT network, enhance extracted data, and improve network cost and impact. A company specializing in IoT solutions wishes to deploy a network of smart sensors for environmental monitoring (air quality, temperature, humidity, noise) in an urban or agricultural context in La Réunion. The client requests an end to end solution : from embedded sensor nodes to a visualization dashboard, including data collection and processing. The engineering team must design, prototype, and demonstrate the feasibility of this solution while considering energy autonomy

Modifié le : 14 juillet 2026

UE7-IOT

IoT SAE

SCOPE OF THE CHALLENGE

WORKING SITUATION

COMPETENCES AND LEVEL ASSESSED

- Apply programming and communication paradigms specific to embedded systems and IoT (1.5)-(1.4)
- Analyze IoT data while integrating edge analytics specificities (1.5)-(1.4)
- Assess project costs and economic viability of a solution (1.5)-(1.4)
- Evaluate the environmental impact of a solution (1.5)-(1.4)
- Manage a project while respecting cost, schedule, and quality constraints (1.5)-(1.4)

EXPECTED OUTPUTS

- A **documented Git repository** containing all source code, technical documentation, architecture diagrams, and README.
- A **framing note** including the roadmap, project methodology, and risk management.
- A **specification document** with detailed requirements, regulatory compliance, and environmental analysis.
- An **architecture document** covering hardware and software with justification of technological choices, autonomy estimation, and costs.
- An **MVP v0 :** functional prototype with test log and metrics.
- An **MVP v1 :** integrated prototype with market analysis and economic model.
- **Presentation materials** for intermediate and final reviews.
- A **report** and a **demonstration** of the complete solution.

RESOURCES

- Teachers from IoT-related UE courses and engineering tools
- IOT701 : Embedded and Real-Time Systems (co-requisite)
- IOT706 : Data Analysis for IoT (co-requisite)
- Systems and Networks modules and Development modules from previous semesters