

IDENTIFICATION

Course code : IOT601
ECTS : 1

DURATION

Lectures : 2
Tutorial classes : 8
Labs : 20
Total : 30

Project :
Personnal work :

ASSESSMENT

Continuous assessments and practical evaluations.

TEACHING MATERIALS

Slides, directed work sheets, and practical work sheets.

LANGUAGE

English

CONTACT

Pierre Ugo TOURNOUX
pierre.tournoux@univ-reunion.fr

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UE : UE6-IOT

COURSE : Internet of Things : Prototyping

SCOPE OF THE COURSE

OBJECTIVES

This course aims to introduce students to the fundamental concepts of the Internet of Things (IoT) and equip them with the skills needed to design, develop, and prototype connected devices. Through a practical approach, students will learn to use suitable hardware and software platforms while exploring the technical challenges and real-world applications of IoT across various domains.

COMPETENCE AND SKILLS

- Organize the project according to project management methodologies
- List and implement network protocols for IoT
- Implement data distribution protocols specific to IoT
- Select suitable development environments (IDEs) for prototyping and product development

PROGRAM

- Digital electronics :
 - Introduction : concepts of logic circuits, asynchronous and synchronous sequential systems.
 - Analysis of digital circuits.
 - Use of elementary circuits (gates, multiplexers, decoders, flip-flops, registers, memories).
 - Practice with digital circuit synthesis languages (ABEL, VHDL).
 - Implementation of a programmable digital circuit.
- Study of assembly language :
 - Addressing modes.
 - Instructions, specialized instructions - processor interactions with its environment.
 - Virtual memory, cache memory, pipelining.

BIBLIOGRAPHY

Noam Nisan, Shimon Schocken - *The Elements of Computing Systems. Building a Modern Computer from First Principles* - MIT (2005)

REQUIREMENTS

- DEV UE course from S5
- IoT UE course from S5