

# UE Thematic and interdisciplinary projects



Level  
Baccalaureate  
+5



ECTS  
6 credits



Component  
UFR PhITEM  
(physique,  
ingénierie, terre,  
environnement,  
mécanique)



Semester  
Automne

- > **Teaching language(s):** English
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** PAX9NPAL

## Presentation

### Description

This UE Thematic and interdisciplinary projects is divided in 2 parts :

**Part 1 :** *Quantum practicals on IBM-Q*

Teachers : Julien Renard (CNRS) Matias Urdampilleta (CNRS)

Projects will be focused on the implementation of elementary quantum algorithms on superconducting quantum processors and simulators (IBM-Q). It relies on a "learning by doing" strategy. Developed skills: Python & quantum circuits.

**Part 2 :** *Quantum seminars*

A series of seminars (regular and extended ones) will complete the regular course offer during the fall semester.

For the academic year 2024-2025, the program (18 hours in total) is the following:

- 3 extended seminars (3 x 1.5 hours each)
  - Mechanical systems in the quantum limit, Jérémie Viennot (CNRS)
  - Spin Qubits with NV centers, Benjamin Pigeau (CNRS)
  - Modeling and Simulation for Spin Quantum Dots and Qubits, Yann-Michel Niquet (CEA)

- 3 regular seminars (1.5 hour each)
  - What is a PhD ? Olivier Isnard, Director of the Physics Doctoral School
  - Quantum Start-ups presentations.
  - Short presentations of PhDs students about their work.

---

## Course parts

UE Thematic and interdisciplinary projects - CMTD

Lectures (CM) & Teaching Unit (UE)

34h

**Period :** Semester 9

## Useful info

---

## Campus

› [Grenoble - University campus](#)