

# UE Thematic and interdisciplinary projects



Niveau d'étude  
Bac +5



ECTS  
6 crédits



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



Période de  
l'année  
Toute l'année

- > **Langue(s) d'enseignement:** Anglais
- > **Ouvert aux étudiants en échange:** Oui
- > **Code d'export Apogée:** PAX9NPAL

## Présentation

### 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.

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## Heures d'enseignement

UE Thematic and interdisciplinary projects - CMTD

Cours magistral - Travaux dirigés

34h

**Période** : Semestre 9

## Infos pratiques

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### Campus

› Grenoble - Domaine universitaire