

UE Microwaves and Cryoelectronics



Level
Baccalaureate
+5



ECTS
3 credits



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



Semester
Automne

- > **Teaching language(s):** English
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** PAX9QIAE

Presentation

Description

Teachers : Xavier Jehl (CEA) for Chapter 1, Hélène Jacquinot (CEA Leti) for Chapter 2

Objectives :

Key Enabling Technologies are necessary for Quantum Technologies. This course will introduce two main technological tools widely used in quantum engineering technologies but also used in micro-electronics and telecoms.

Program :

Chapter 1 : *Cryoelectronics and Low temperature techniques*

- Low temperature apparatus (4K and mK refrigerators)
- Electronic devices working at cryogenic temperatures
- Very low noise devices (Josephson parametric amplifier), cryo-CMOS.g.

Chapter 2 : *RF/Microwave techniques*

- Microwave propagation
- Classical communication systems and modulations
- Transceivers characteristics, heterodyne and homodyne architecture

Course parts

UE Microwaves and Cryoelectronics - CMTD

Lectures (CM) & Teaching Unit (UE)

24h

Period : Semester 9

Useful info

Campus

› [Grenoble - University campus](#)