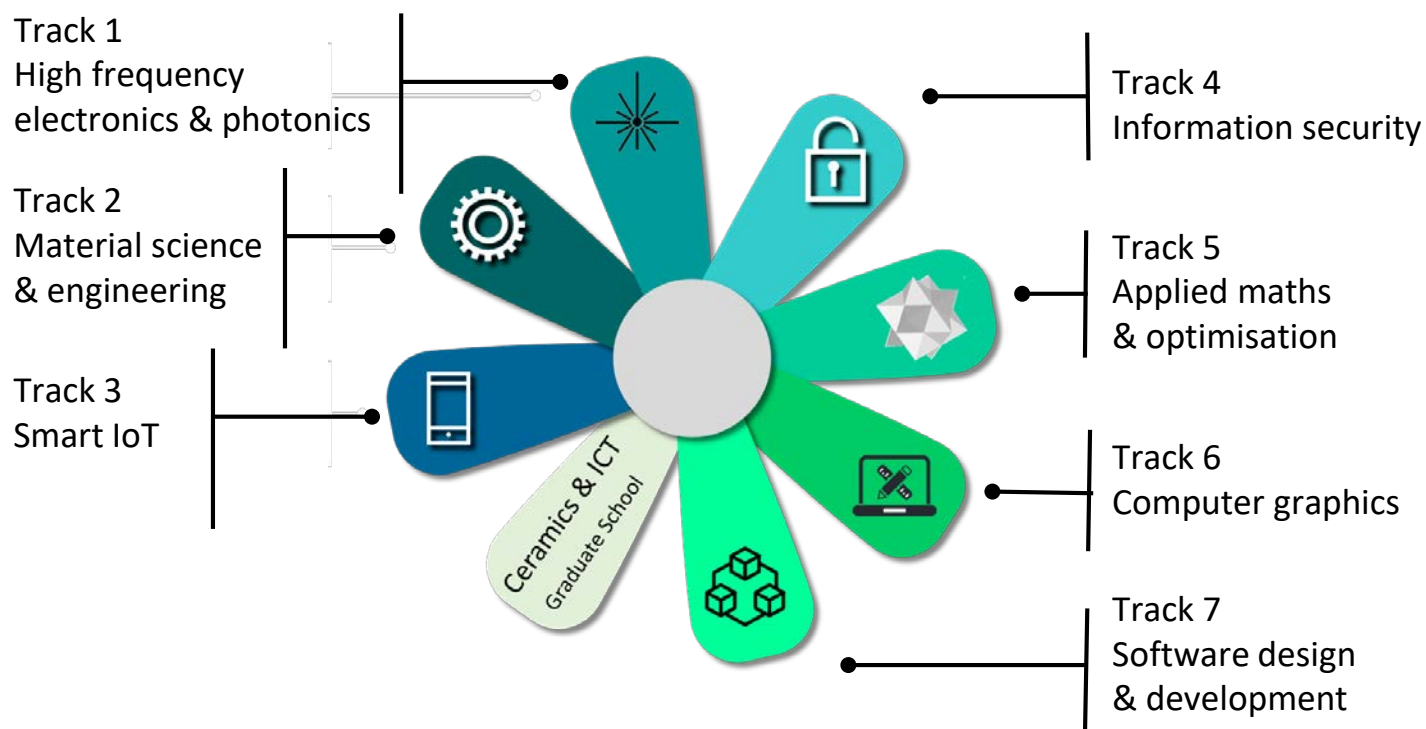


Ceramics & ICT Graduate School



- Disciplinary courses giving strong skills and a high level of **specialization** in one of the 7 disciplinary domains
- **Interdisciplinary** teachings comprising theoretical and practical courses at the interface between the 7 tracks (cybersecurity, photonics for health, additive manufacturing for 5G,)
- Long research/industry working group projects: to get **transverse** skills and interdisciplinary vision through thinking and working approach: **innovation**, creativity processes, co-design...

Contact and registration
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High frequency electronics & photonics - HFEP



High frequency electronics & photonics - Presentation

The HFEP master at Graduate School is a recognized diploma in the field of high technologies for high-frequency electronic and optical communications. The track prepares students for research, engineering studies, development and production in the field of high frequency and optical technologies.

This master is backed by the XLIM laboratory (www.xlim.fr) which brings together a group of 450 people. Thus, students benefit from teaching in a privileged environment: access to technological, characterization and software resources in connection with the XLIM laboratory,

Professional integration takes place, at the end of the master's degree or after a doctoral training, in large industrial groups of radiofrequency electronics (for military and civil applications), in start-ups or SMEs in the sectors of the optics, electromagnetism or telecommunications electronics.

MAJOR COURSES – 63 ECTS*

Core courses - 57 ECTS Core teachings

Circuits and systems for High Frequency
Coherent photonics (fibers, lasers, nonlinear optics)
Microelectronics, Micro and Nano Technologies
Telecommunications Systems

In-depth Disciplinary courses - 6 ECTS 2 elective courses among

Front-End and RF Architectures for Satellites,
Design, fabrication and characterization of fiber-based laser systems,
Microelectronics RF, Micro and Nano Technologies

MINOR COURSES – 11 ECTS*

Interdisciplinary Courses Bridging courses 2 elective courses among

Elaboration processes,
Solid States Physics,
Physics of components and semiconductors in IoT
Methodology part of electronic design of IoT

Interdisciplinary Courses 2 elective courses among

Materials and nonlinear optics,
Additive Manufacturing and RF technology processes
Material properties and characterizations
Materials & light sources,
Bio-Engineering,
Smart Energy,
Energy Harvesting

Interdisciplinary scientific project

With a Graduate School's multidisciplinary team, interdisciplinary workshop of one day/year

INTENSIVE SUPPORT FOR PROFESSIONAL PROJECT – 46 ECTS*

Soft skills 12 ECTS

Innovation economy,
Creativity processes,
Foreign languages (English or French)

International mobility 5 ECTS

Full time internship in a foreign lab or compagny

Research labworks 5 ECTS

Research Climbing Ropes programme

Research Internship 24 ECTS

Master thesis in a R&D company or in a lab

*1 ECTS = ~10 hours of classes