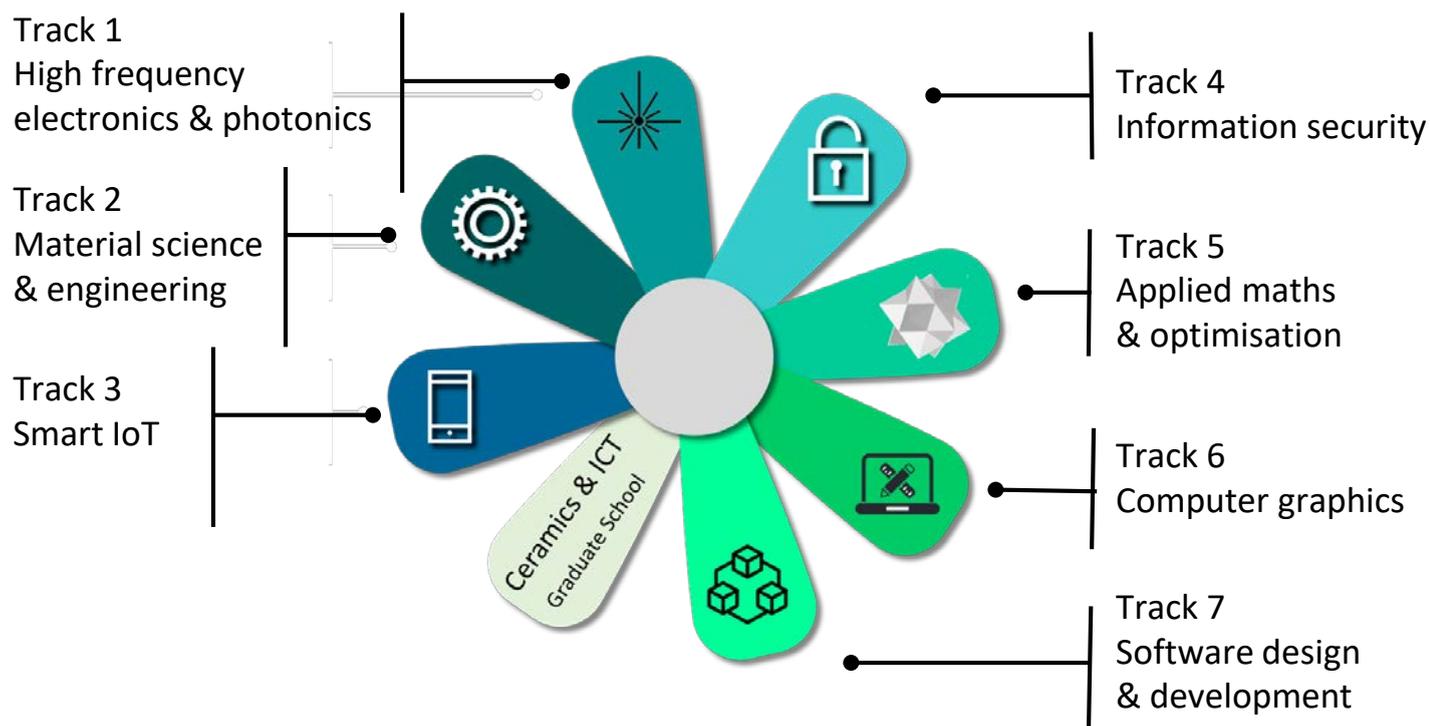


# Ceramics & ICT Graduate School



- 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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# Applied mathematics & optimisation - AMO



## Applied mathematics & optimisation - Presentation

This applied mathematics & optimisation Master degree of the Graduate School offers a background in applied mathematics. It prepares for careers as an engineer or researcher in the following areas: optimization, symbolic-numerical computation, mathematical methods for automatic, optimization of form and optimal control. The symbolic and numerical approach of the problems addressed, as well as certain themes like the optimization of form, make this master an original formation in France. This formation two years is in response to a request from the high-tech industry and research laboratories, specialists capable of developing and implementing advanced mathematical methods in the service of other scientific disciplines.

It is based on the multidisciplinary laboratory XLIM CNRS. The regular intervention of lecturers from industry and major research organizations ensures the adequacy of the training to the expectations of the professional world.

### MAJOR COURSES – 63 ECTS\*

#### Core courses - 57 ECTS Core teachings

- Numerical optimization
- Variational analysis
- Optimal control
- Symbolic-numeric computation

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

- Large-scale optimization and application to data Mining
- Stochastic Optimization

### MINOR COURSES – 11 ECTS\*

#### Interdisciplinary Courses Bridging courses

- Linear Algebra

#### Interdisciplinary Courses 2 elective courses among

- Modelization, Simulation, Optimization
- Scientific computation and parallelisation
- Database security
- Watermarking

#### 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