



## MASTER CRYPTIS

# Information Security Computer Science training path

Level	Program duration	Credits
Master	2 years	120 credits

### Program outline

This course allows you to acquire various skills related to security, from cryptography to the security of hardware components, including secure development and even network security.

The objective is to train engineer-level Cybersecurity specialists, knowledgeable about vulnerabilities, attack methods and countermeasures, capable of:

- take charge of the design, deployment and security of a distributed information system,
- develop secure software and hardware

### Admissions requirements

Must hold a Bachelor's degree in computer science or equivalent.

### Organization

- Internship in M1 (international mobility)
- End-of-study internship in M2
- Scientific project in M2

### How to apply

Students residing in France or the EU: [www.monmaster.gouv.fr](http://www.monmaster.gouv.fr)

International students from outside the EU:  
[www.campusfrance.org/fr](http://www.campusfrance.org/fr)

### Key info

- Selective course (limited places)
- No repetition possible in TACTIC course
- Scholarships 6000€ (4000€ in M1, 2000€ in M2)
- Financial assistance for incoming and outgoing mobility

### Study place

Campus La Borie, Limoges

### Program contact

M1 :  
[maxime.maria@unilim.fr](mailto:maxime.maria@unilim.fr),  
[nicolas.aragon@unilim.fr](mailto:nicolas.aragon@unilim.fr)

M2 :  
[philippe.gaborit@unilim.fr](mailto:philippe.gaborit@unilim.fr)

### Graduate school contact

[tactic-gradschool@unilim.fr](mailto:tactic-gradschool@unilim.fr)

### University contact

[msscience@unilim.fr](mailto:msscience@unilim.fr)

## What's next ?

- **Continuation of study**

Continuation in thesis possible.

- **Job opportunities**

**Jobs:** Cryptology engineer, security administrator, security architect, researcher, assistant professor...

**Sectors:** IT service providers, security audit and consulting companies, integrators, engineering companies, security software publishers, public establishments (Ministry of Defense, Interior, local authorities).

## Program

### Semester 1

Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Algorithmics and advanced programming	UE	6h	12h	12h	3
Networks administration	UE	10.5h	12h	7.5h	3
Development on GPGPU	UE	12h	0h	18h	3
Watermarking	UE	30h	0h	0h	3
Artificial intelligence	UE	9h	9h	12h	3
Computer networks programming and protocols	UE	10.5h	12h	7.5h	3
Embedded systems	UE	12h	9h	9h	3
Introduction to cryptology	UE	12h	18h	0h	3
Soft skills	UE	20h	10h	0h	3
Laboratory research project at XLIM	Project				3

## Semester 2

Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Security of ICT uses	UE	15h	0h	15h	3
Network infrastructures	UE	9h	12h	9h	3
Advanced cryptology	UE	12h	12h	6h	3
Soft skills	UE	20h	10h	0h	3
<b>Elective courses (1 out of 3)</b>					
• Parallelism and applications	UE	9h	12h	9h	3
• Game theory	UE	9h	9h	12h	3
• Artificial intelligence	UE	9h	9h	12h	3
Audit and network security	UE	9h	12h	9h	3
Database security	UE	20h	10h	0h	3
Language (English or French)	UE	0h	30h	0h	3
Laboratory research project at XLIM	Project				3
Abroad internship	Internship				3

## Semester 3

Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Applicative security	UE	15h	15h	0h	3
<b>Elective courses (2 out of 4)</b>					
• Techniques of provable security	UE	12h	18h	0h	3
• Smart card development	UE	12h	18h	0h	3
• Security and implementation of smart card	UE	9h	12h	9h	3
• Mobile networks	UE	15h	0h	15h	3

Cryptographic software development	UE	15h	0h	15h	3
Cryptographical mechanisms and application	UE	21h	15h	9h	3
Administration and security of network and system	UE	45h	45h	15h	9
Language (English or French)	UE	0h	30h	0h	3
Soft skills	UE	6h	14h	0h	3

## Semester 4

Course name	Course unit (UE or component)	Nbr h Lecture	Nbr h Tutorial	Nbr h Practice	Credits
Research or entrepreneurial project	Project				6
End of study internship (master's thesis)	Internship				24

The information on this page is for information purposes and is not contractual

Update : November 2024