MASTER CRYPTIS

Information Security Mathematics training path

Level	Program duration	Credits
Master	**2 years**	**120 credits**

Program outline

This master's degree trains specialists in the study and development of cryptographic and information coding solutions. Graduates are intended to join engineering teams in industry, services and the public sector.

Admissions requirements

Must hold a Bachelor's degree in mathematics 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

International students from outside the EU: 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 : francois.arnault@unilim.fr

M2 : pierre.dusart@unilim.fr

Project manager : celine.parvy@unilim.fr

School contact

msciences@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
Algebra	UE	24h	36h	0h	6
Watermarking	UE	30h	0h	0h	3
Algorithmics of finite fields	UE	24h	36h	0h	6
Introduction to cryptology	UE	12h	18h	0h	3
Programming and algorithmics	UE	30h	0h	30h	6
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
Mathematics for cryptography	UE				8
Arithmetic and number theory for cryptography	Component	27h	33h	0h	6

Correction codes	component	10h	10h	0h	2
Elective courses (1 out of 2)					
• Advanced cryptology	UE	12h	12h	6h	3
• Database security	UE	20h	10h	0h	3
Algebra	UE				7
Polynomial systems	Component	8h	10h	8h	3
Computer algebra	Component	16h	20h	8h	4
Language (English or French)	UE	0h	30h	0h	3
Soft skills	UE	20h	10h	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**
Elective courses (2 out of 4)					
• Smart card development	UE	12h	18h	0h	3
• Security and implementation of smart card	UE	9h	12h	9h	3
• Corrective codes and cryptography	UE	6h	24h	0h	3
• Applied algebra	UE	6h	24h	0h	3
Number theory and elliptic curves	UE	6h	24h	0h	3
Cryptographic software development	UE	15h	0h	15h	3
Quantum computing and cryptography	UE	6h	24h	0h	3
Cryptographics mecanisms and application	UE	21h	15h	9h	3
Advanced cryptography	UE				9
Public key cryptography	Component	21h	18h	6h	4.5

Secret key cryptography	Component	21h	18h	6h	4.5
Language (English or French)	UE	0h	30h	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