

Master in cybersecurity

Focus Conception et Analyse de Systèmes

The programme is organised around **five specific and complementary key disciplines**: (1) Cryptography, (2) Systems and Networks, (3) Legal, ethical, and human aspects, (3) Security management, and (5) Secure software engineering

The **first year** of the Master is dedicated to a **common set of courses**. Several seminars and elective courses ensure the **curriculum is dynamic and remains up to date**. For instance, 10 credits can be chosen as **elective courses**, selected from courses already taught in the participating academic institutions.

In the second year, half of the programme's credits are for courses in one of **two focuses**: 'system design and analysis', which is dedicated to the design and thorough analysis of secure systems, and 'corporate strategies', which is dedicated to more concrete applications. Both focuses are built on the **students' personal involvement and self-learning, through several projects**. A significant part of the skills involved is acquired during the **mandatory long-term work placement in a professional environment** (typically 12 weeks).

Students take part in **projects and challenges** that further add to the expertise and practical know-how required in the IT industry. They apply the concepts covered in lectures, and learn new material by solving proposed challenges.

At the end of the programme, students prepare a **Master's dissertation** under the supervision of a professor who is an active researcher in the field.

Bloc 1 | M-SECUC | MA-SECU

Cours obligatoires

ELEC-H504	Network Security Jean-Michel DRICOT (Coordinator) and Charles CUVELLIEZ ⌚ 5 credits [lecture: 24h, practical work: 12h] 🗨 English
INFO-F307	Génie logiciel et gestion de projets Frédéric PLUQUET (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 24h] 🗨 French
INFO-F309	Administration de systèmes Sébastien COLLETTE (Coordinator) ⌚ 5 credits [lecture: 24h, practical work: 24h] 🗨 French
INFO-F405	Introduction to cryptography Olivier MARKOWITCH (Coordinator) and Gilles VAN ASSCHE ⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 🗨 English
INFO-F514	Protocols, cryptanalysis and mathematical cryptology Olivier MARKOWITCH (Coordinator), Liran LERMAN and Christophe PETIT ⌚ 5 credits [lecture: 24h, tutorial classes: 12h] 🗨 English
INFO-Y111	Computer system security ⌚ 5 credits [lecture: 30h, tutorial classes: 15h]
INFO-Y112	Machine learning and data mining ⌚ 5 credits [lecture: 30h, practical work: 15h]
INFO-Y113	Management of security ⌚ 5 credits [lecture: 24h, practical work: 24h]
INFO-Y114	Legal aspects of IT security ⌚ 5 credits [lecture: 30h]
INFO-Y115	Secure software design and web security Romain ABSIL (Coordinator) ⌚ 5 credits [lecture: 30h, practical work: 20h]

Cours à option - Electives (10 crédits)

TEMP-0000	Cours extérieurs au programme ⌚ 10 credits 🗨 French
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Master in cybersecurity

Focus Conception et Analyse de Systèmes

Bloc 2 | M-SECUC | MA-SECU

Cours obligatoires

- ELEC-H423 [Mobile and wireless networks](#) | Jean-Michel DRICOT (Coordinator)
⌚ 5 credits [lecture: 36h, practical work: 24h] 🗨️ English
- INFO-Y116 [Aspects éthiques de l'informatique et de la sécurité informatique](#)
⌚ 5 credits [lecture: 30h]
- MEMO-Y117 [Master thesis](#)
⌚ 20 credits [mfe/tfe: 240h]

Cours spécifiques

- INFO-F531 [Security analysis internship](#) | Jean-Michel DRICOT (Coordinator) and Olivier MARKOWITCH
⌚ 10 credits [work placement: 120h, cours global: 120h]
- INFO-Y118 [Mobile and embedded computing](#)
⌚ 5 credits [lecture: 30h, tutorial classes: 30h]
- INFO-Y119 [Forensics and reverse engineering](#)
⌚ 5 credits [lecture: 24h, practical work: 24h]
- INFO-Y120 [Big data and computer security](#) | Jean-Noël COLIN (Coordinator)
⌚ 5 credits [lecture: 30h, practical work: 15h]
- INFO-Y121 [Privacy enhancing technologies](#)
⌚ 5 credits [lecture: 30h, tutorial classes: 30h]

Master in cybersecurity

Focus Stratégies en entreprise

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Cours spécifiques

- INFO-Y122 [Security Analysis: from audits to red teaming](#) | Jérôme DOSSOGNE (Coordinator)
⌚ 5 credits [lecture: 30h, practical work: 30h]
- INFO-Y123 [Human factors in information security](#) | Jérôme DOSSOGNE (Coordinator)
⌚ 10 credits [lecture: 60h, practical work: 60h]
- INFO-Y124 [Case studies in security strategies](#) | Charles CUVELLIEZ (Coordinator)
⌚ 5 credits [lecture: 30h, practical work: 30h]
- INFO-Y125 [Internship in Cybersecurity](#) | Carine PIERRE (Coordinator)
⌚ 10 credits [work placement: 120h]