Master in cybersecurity
Focus Cryptalalysis and Forensics

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)
5 credits [lecture: 24h, practical work: 12h] second term English

INFO-F307 | **Génie logiciel et gestion de projets** | Frédéric PLUQUET (Coordinator)
5 credits [lecture: 24h, practical work: 7h, project: 89h] second term French

INFO-F309 | **Administration de systèmes** | Sébastien COLLETTE (Coordinator)
5 credits [lecture: 24h, practical work: 24h, project: 30h] second term French

INFO-F405 | **Introduction to cryptography** | Christophe PETIT (Coordinator) and Gilles VAN ASSCHE
5 credits [lecture: 24h, tutorial classes: 24h, project: 30h] first term English

INFO-F514 | **Protocols, cryptanalysis and mathematical cryptology** | Olivier MARKOWITCH (Coordinator), Liran LERMAN and Christophe PETIT
5 credits [lecture: 24h] second term English

INFO-Y111 | **Computer system security** | Ramin SADRE
5 credits [lecture: 30h, tutorial classes: 15h] second term

INFO-Y112 | **Machine learning and data mining** | Benoit FRENAY
5 credits [lecture: 30h, practical work: 15h] first term

INFO-Y113 | **Management of security** | Thibault Debatty (Coordinator) and Wim Mees
5 credits [lecture: 24h, practical work: 24h] second term

INFO-Y114 | **Legal aspects of IT security** | Amélie LACHAPELLE
5 credits [lecture: 30h] first term

INFO-Y115 | **Secure software design and web security** | Romain ABSIL (Coordinator)
5 credits [lecture: 30h, practical work: 20h] first term

Cours à option - Electives (10 crédits)

TEMP-0000 | **Cours extérieurs au programme**
10 credits academic year French

Master in cybersecurity
Focus Cryptalalysis and Forensics

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]   first term   English

INFO-Y116   **Aspects éthiques de l'informatique et de la sécurité informatique** | Marie-des-Neiges Ruffo (Coordinator)
5 credits [lecture: 30h]   second term

MEMO-Y117   **Master thesis** | Thibault Debatty (Coordinator)
20 credits [mfe/tfe: 240h]   academic year

Cours spécifiques

INFO-Y118   **Mobile and embedded computing** | Ramin SADRE
5 credits [lecture: 30h, tutorial classes: 30h]   second term

INFO-Y119   **Forensics and reverse engineering** | Thibault Debatty (Coordinator)
5 credits [lecture: 24h, practical work: 24h]   first term   English

INFO-Y120   **Data analysis for cybersecurity** | Bruno Dumas, Benoit FRENAY, Renaud Lambiotte and Florentin ROCHET
5 credits [lecture: 30h, practical work: 15h]   first term   English

INFO-Y121   **Privacy enhancing technologies** | Olivier POREIRA and François-Xavier STANDAERT
5 credits [lecture: 30h, tutorial classes: 30h]   first term

STAG-F009   **Security analysis internship** | Jean-Michel DRICOT (Coordinator) and Olivier MARKOWITCH
10 credits [work placement: 120h]   first and second terms   French

Master in cybersecurity
Focus Corporate Strategies

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-SECUS | MA-SECU

Cours obligatoires

ELEC-H504	**Network Security**	Jean-Michel DRICOT (Coordinator)
	5 credits [lecture: 24h, practical work: 12h] · second term · English	
INFO-F307	**Génie logiciel et gestion de projets**	Frédéric PLUQUET (Coordinator)
	5 credits [lecture: 24h, practical work: 7h, project: 89h] · second term · French	
INFO-F309	**Administration de systèmes**	Sébastien COLLETTE (Coordinator)
	5 credits [lecture: 24h, practical work: 24h, project: 30h] · second term · French	
INFO-F405	**Introduction to cryptography**	Christophe PETIT (Coordinator) and Gilles VAN ASSCHE
	5 credits [lecture: 24h, tutorial classes: 24h, project: 30h] · first term · English	
INFO-F514	**Protocols, cryptanalysis and mathematical cryptology**	Olivier MARKOWITCH (Coordinator), Liran LERMAN and Christophe PETIT
	5 credits [lecture: 24h] · second term · English	
INFO-Y111	**Computer system security**	Ramin SADRE
	5 credits [lecture: 30h, tutorial classes: 15h] · second term	
INFO-Y112	**Machine learning and data mining**	Benoit FRENAY
	5 credits [lecture: 30h, practical work: 15h] · first term	
INFO-Y113	**Management of security**	Thibault Debatty (Coordinator) and Wim Mees
	5 credits [lecture: 24h, practical work: 24h] · second term	
INFO-Y114	**Legal aspects of IT security**	Amélie LACHAPELLE
	5 credits [lecture: 30h] · first term	
INFO-Y115	**Secure software design and web security**	Romain ABSIL (Coordinator)
	5 credits [lecture: 30h, practical work: 20h] · first term	

Cours à option - Electives (10 crédits)

TEMP-0000	**Cours extérieurs au programme**	
	10 credits · academic year · French	

UNIVERSITÉ
LIBRE
DE BRUXELLES

Faculty of Sciences

Master in cybersecurity
Focus Corporate Strategies

MA-SECU | M-SECUS | 2023-2024

Bloc 2 | M-SECUS | MA-SECU

Cours obligatoires

ELEC-H423   Mobile and wireless networks | Jean-Michel DRICOT (Coordinator)
5 credits [lecture: 36h, practical work: 24h]   first term   English

INFO-Y116   Aspects éthiques de l'informatique et de la sécurité informatique | Marie-des-Neiges Ruffo (Coordinator)
5 credits [lecture: 30h]   second term

MEMO-Y117   Master thesis | Thibault Debatty (Coordinator)
20 credits [mfe/tfe: 240h]   academic year

Cours spécifiques

INFO-Y122   Security Analysis: from audits to red teaming | Jérôme DOSSOGNE (Coordinator)
5 credits [lecture: 30h, practical work: 30h]   first term

INFO-Y123   Human factors in information security | Jérôme DOSSOGNE (Coordinator)
10 credits [lecture: 60h, practical work: 60h]   first term   English

INFO-Y124   Corporate information security | Charles CUVELLIEZ (Coordinator)
5 credits [lecture: 30h, practical work: 30h]   second term

STAG-F010   Internship in Cybersecurity | Yasser El Jasouli (Coordinator)
10 credits [work placement: 120h]   first and second terms   French

Master in cybersecurity
Focus Erasmus Mundus joint master in Cybersecurity (CYBERUS)

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-SECUM | MA-SECU

The first year is to be followed at Université de Bretagne Sud (UBS).

HULB-0000   Cours externe à l'Université
⊙ 60 credits   🗓 academic year

Master in cybersecurity
Focus Erasmus Mundus joint master in Cybersecurity (CYBERUS)

Bloc 2 | M-SECUM | MA-SECU

Cours obligatoires

ELEC-H423   Mobile and wireless networks | Jean-Michel DRICOT (Coordinator)
5 credits [lecture: 36h, practical work: 24h]   first term   English

ELEC-H550   Embedded System Security | Jan Tobias Mühlberg (Coordinator)
5 credits [lecture: 24h, practical work: 36h]   first term   English

INFO-F536   Current issues in European digital security | Olivier MARKOWITCH (Coordinator) and Jean-Michel DRICOT
5 credits [seminars: 12h]   first term   English

INFO-F537   Cryptanalysis | Gilles VAN ASSCHE (Coordinator)
5 credits [lecture: 36h]   first term   English

INFO-Y119   Forensics and reverse engineering | Thibault Debatty (Coordinator)
5 credits [lecture: 24h, practical work: 24h]   first term   English

MEMO-F543   Master thesis and internship in cybersecurity | Olivier MARKOWITCH (Coordinator) and Jean-Michel DRICOT
30 credits [work placement: 120h, mfe/tfe: 240h]   second term   English

Cours à options

Ou tout autre cours de MASTER avec l'accord du titulaire et du président de jury

One course chosen from the following

GEST-S482
(optional)   The digital firm | Nicolas VAN ZEEBROECK (Coordinator) and Vincent LION
5 credits [lecture: 36h, tutorial classes: 24h]   first term   English

GEST-S706
(optional)   Entrepreneurship | Olivier WITMEUR (Coordinator) and Ant BOZKAYA
5 credits [lecture: 24h]   second term   English

INFO-F409
(optional)   Learning dynamics | Tom LENAERTS (Coordinator)
5 credits [lecture: 24h, project: 60h]   first term   English

INFO-H415
(optional)   Advanced databases | Esteban ZIMANYI (Coordinator)
5 credits [lecture: 24h, tutorial classes: 24h, practical work: 12h]   first term   English

INFO-H420
(optional)   Management of Data Science and Business Workflows | Dimitrios SACHARIDIS (Coordinator)
5 credits [lecture: 24h, tutorial classes: 36h]   first term   English

INFO-Y082
(optional)   Distributed and mobile programming paradigms | Elisa GONZALEZ BOIX
6 credits [lecture: 26h, tutorial classes: 26h, project: 30h]   first term   English

INFO-Y115
(optional)   Secure software design and web security | Romain ABSIL (Coordinator)
5 credits [lecture: 30h, practical work: 20h]   first term

One course chosen from the following

TEMP-0000
(optional)

Cours extérieurs au programme
🕐 5 credits   🗓 academic year   💬 French

TEMP-0000
(optional)

Cours extérieurs au programme
🕐 10 credits   🗓 academic year   💬 French

TEMP-0000
(optional)

Cours extérieurs au programme
🕐 15 credits   🗓 academic year   💬 French