

## Master Informatique

# Parcours Cybersecurity 2e année

## Présentation

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Cybersecurity is a second year program (semesters 9 and 10) of the Mathematics and Computer Science Masters. Courses are in English and the program follows a first year Master 1 in mathematics or Computer Science or equivalent.

The economical impact of losses due to cybercriminality is estimated to several hundreds of billions of euros per year (445 billions of dollars, according to a McAfee/CSIS study in 2014) with a large increase in attacks, for instance identity and data thefts and malicious attacks.

Vulnerabilities and Protections are covered, with for instance:

- Robustness of critical infrastructures when facing cyberattacks (e.g., stuxnet, wannacry),
- Robustness of security components when facing software vulnerabilities and data leakage (e. g., heartbleed),
- Privacy protection and cloud infrastructure security,
- Robust design and evaluation of security components,
- Detection of vulnerabilities in protocols for hardware and software components.

Topics covered in the training include additional areas of Cybersecurity, such as cryptology, forensics, fuzzing or anonymization, especially for embedded systems and distributed architectures.

## Objectifs

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Train cybersecurity experts (including data privacy aspects) with a Bac+5 degree, able to evolve immediately in an industrial environment and who can also pursue a thesis.

## Admission

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Public continuing education:

You are in charge of continuing education:

- if you resume your studies after 2 years of interruption of studies,
- or if you followed a formation under the regime formation continues one of the 2 preceding years
- or if you are an employee, job seeker, self-employed.

If you do not have the diploma required to integrate the training, you can undertake a [validation of personal and professional achievements \(VAPP\)](#).

Vous souhaitez candidater et vous inscrire ?

Sachez que la procédure diffère selon le diplôme envisagé, le diplôme obtenu, ou le lieu de résidence pour les étudiants étrangers.

- **Vous êtes un candidat non ressortissant de l'Union Européenne, résidant en**

Algérie, Argentine, Bénin, Brésil, Burkina Faso, Cameroun, Chili, Chine, Colombie, Comores, Congo, Corée du Sud, Côte d'Ivoire, Egypte, Etats-Unis, Gabon, Guinée, Inde, Indonésie, Iran, Japon, Liban, Madagascar, Mali, Maroc, Maurice, Mauritanie, Mexique, Pérou, Russie, Sénégal, Syrie, Taïwan, Togo, Tunisie, Turquie, Vietnam.

[Candidater sur études en France](#)

et

[sur FSA](#)

- **Pour les autres candidats**

[Candidater](#)

## Poursuite d'études

Depending on the nature of their practicum, students may wish to pursue research in a doctoral thesis.

## Infos pratiques :

- > **Composante** : Grenoble INP, UFR IM2AG (informatique, mathématiques et mathématiques appliquées)
- > **Durée** : 1 an
- > **Type de formation** : Formation initiale / continue
- > **Lieu** : Grenoble - Domaine universitaire
- > **Contacts** :

### Responsable(s) pédagogique(s)

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### Secrétariat de scolarité

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## Programme

### Master 2e année

#### Semestre 9

UE Software security, secure programming and computer forensics	3 ECTS	39h
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UE Security architectures : network, system, key managements, cybersecurity of industrial IT	6 ECTS	78h
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UE Cryptographic engineering, protocols and security models, data privacy, coding and applications	6 ECTS	78h
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UE Threat and risk analysis, IT security audit and norms	3 ECTS	39h
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UE Physical Security : Embedded, Smart Card, Quantum & Biometrics	6 ECTS	78h
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1 élément(s) au choix parmi 2

UE Advanced cryptography	6 ECTS	39h
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UE Advanced security	6 ECTS	39h
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#### Semestre 10

UE Stage de recherche

30 ECTS

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