

Parcours Cybersecurity 2e année

Présentation

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

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.

The course is labelled "Core AI" by [MIAI](#).

Admission

The second year is accessible on file (and / or interview) to candidates who have validated the 1st year of a compatible course or through a validation of studies or acquired under the conditions determined by the university or training

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 \(VAPP\)](#)

Do you want to apply and register? Note that the procedure differs depending on the degree considered, the degree obtained, or the place of residence for foreign students.

[Find out which procedure applies to me and apply](#)

Poursuites d'études

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

Infos pratiques :

- > Composante : UFR IM2AG (informatique, mathématiques et mathématiques appliquées), Grenoble INP, Institut d'ingénierie et de management, Grenoble INP - Ensimag (Informatique, mathématiques appliquées et télécommunications)
- > Niveau : Bac +5
- > Durée : 1 an
- > Type de formation : Formation initiale / continue
- > Lieu : Grenoble - Domaine universitaire

Contacts

Responsable pédagogique

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Programme

Program under construction - pending CFVU
vote

UE Stage de recherche

30 ECTS

Master 2e année

Semestre 9

UE Software security, secure
programming and computer forensics 3 ECTS

UE Security architectures : network,
system, key managements,
blockchains, cybersecurity of
industrial IT 6 ECTS

UE Cryptographic engineering,
protocols and security models, data
privacy, coding and applications 6 ECTS

UE Threat and risk analysis, IT
security audit and norms 3 ECTS

UE Physical Security : Embedded,
Smart Card, Quantum & Biometrics 6 ECTS

1 option(s) au choix parmi 2

UE Advanced Security 6 ECTS

UE Advanced Cryptology 6 ECTS

Semestre 10