COM-301

Computer security and privacy

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Cursus	Sem.	Type
Communication systems	BA5	Obl.
Computer science minor	H	Opt.
Computer science	BA5	Obl.
Cyber security minor	H	Opt.
HES - IC	H	Opt.

Language of teaching	English
Credits	6
Session	Winter
Semester	Fall
Exam	Written
Workload	180h
Weeks	14
Hours	**5 weekly**
Courses	3 weekly
Exercises	1 weekly
Lab	1 weekly
Number of positions	

Summary

This is an introductory course to computer security and privacy. Its goal is to provide students with means to reason about security and privacy problems, and provide them with tools to confront them.

Content

The goal of this course is to introduce students to security engineering. The course will help students to think as an adversary so that they can analyse systems and establish security policies. We will cover a number of common security mechanisms at all layers, and learn their properties and limitations.
Core topics:

- Security design principles
- Access control
- Authentication mechanisms
- Applied cryptography
- Sotware and Network security
- Privacy

Keywords

Security Privacy

Learning Prerequisites

Recommended courses

CS-233 Introduction to Machine Learning (for programmation)
CS-202 Computer Systems

Important concepts to start the course

Basic notions TCP/IP
Basic notions programming

Learning Outcomes

By the end of the course, the student must be able to:

- Analyze systems for security
- Decide on security mechanisms to apply
- Establish a security policy
- Analyze systems for security
- Decide on security mechanisms to apply
- Establish a security policy

Teaching methods

In person lectures
Practical assignements interactively resolved in class using the concepts learned in the lectures
Written exercises to reaffirm the learning of the course
Practical programming homeworks to develop attacks and defenses

Expected student activities

Attending lectures, solving exercises, reading and demonstrating understanding of provided materials.

Assessment methods

Continuous control and final exam

Supervision

Office hours	Yes
Assistant.e.s	Yes
Forum	Yes

Resources

Bibliography

Computer security by Dieter Gollmann
Security Engineering by Ross Anderson
Computer Security: Principles and Practice by Stalling and Brown

Ressources en bibliothèque

- Find the references at the Library

Moodle Link

- https://go.epfl.ch/COM-301