EE-552 **Media security**

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Cursus	Sem.	Type
Digital Humanities	MA2, MA4	Opt.
Electrical and Electronical Engineering	MA2, MA4	Opt.
UNIL - Sciences forensiques	E	Opt.

Language of teaching	English
Credits	6
Session	Summer
Semester	Spring
Exam	Written
Workload	180h
Weeks	14
Hours	**3 weekly**
Courses	2 weekly
Exercises	1 weekly
Number of positions	

Summary

This course provides attendees with theoretical and practical issues in media security. In addition to lectures by the professor, the course includes laboratory sessions, a mini-project, and a mid-term exam.

Content

Media security problems:
Rights protection, content integrity verification, conditional access, confidentiality, privacy, steganography and data hiding.

Media access problems:
Access control, conditional access, access over time, copyright.

Media security tools and solutions:
Robust watermarking, fragile watermarking, selective encryption, monitoring, robust hashing, content identification, visual password.

Media security standards:
Secure JPEG 2000 (JPSEC), security tools in the MPEG family of standards from MPEG-1 to MPEG-21.

Applications:
Surveillance with privacy, image abd video right protection, security in digital cinema, etc.

Keywords

watermarking, robust hashing, privacy, conditional access, integrity verification, surveillance, visual password

Learning Prerequisites

Required courses

Any course that covers basic concepts of data encryption or security

Recommended courses

Any course covering basics of image and video processing

Important concepts to start the course

Basic knowledge of data encryption and security
Basic knowledge of image and video processing

Learning Outcomes

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

- Reason the level of security in a multimedia systems
- Formulate the level of security in multimedia systems
- Explain concepts needed in multimedia systems
- Create secure multimedia systems

Transversal skills

- Summarize an article or a technical report.
- Write a scientific or technical report.
- Make an oral presentation.

Teaching methods

Lectures, mini-project, laboratory sessions, mid-term exam, final exam

Expected student activities

Prepare and present a specific topic in media security as part of the mini-projet
Perform laboratory sessions and write a report

Assessment methods

Final exam will be in oral if less than 20 students.
Final exam will be written if more than 20 students.
Final mark will be a weighted sum of the marks of final, and intermedia exams, as well as mini-project and laboratory sessions.

Supervision

Office hours	No
Assistant.e.s	Yes
Forum	Yes
Others	Students are encouraged to contact the professor at any time if they have any questions or need any clarification of any of the concepts presented during the course.

Resources

Bibliography

Lecture notes, selected articles.

Notes/Handbook

Print-out of slides presented

Moodle Link

- https://go.epfl.ch/EE-552