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 and 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
Assistants 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
• http://moodle.epfl.ch/course/view.php?id=235