CS-411

Digital education

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Cursus	Sem.	Type
Computer science minor	E	Opt.
Computer science	MA2, MA4	Opt.
Cybersecurity	MA2, MA4	Opt.
Data Science	MA2, MA4	Opt.
Digital Humanities	MA2, MA4	Opt.
Learning Sciences		Opt.
Minor in digital humanities, media and society	E	Opt.
SC master EPFL	MA2, MA4	Opt.

Language of teaching	English
Credits	6
Session	Winter, Summer
Semester	Spring
Exam	Written
Workload	180h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Project	2 weekly
Number of positions	

Summary

This course addresses the relationship between specific technological features and the learners' cognitive processes. It also covers the methods and results of empirical studies: do student actually learn due to technologies? I will be given twice in 2025 (Spring + Fall)

Content

- *Learning theories and learning processes.*
- *Types of learning technlogies*
- *Instructional design: methods, patterns and principles.*
- *On-line education.*
- *Effectiveness of learning technologies.*
- *Methods for empirical research.*
- *Computational thinkiing skills*
- *Maker spaces*

Keywords

learning, pedagogy, teaching, online education, maker spaces

Learning Outcomes

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

- Describe the learning processes triggered by a technology-based activity
- Explain how a technology feature influences learning processes
- Elaborate a study that measures the learning effects of a digital environment
- Select appropriately a learning technology given the target audience and the expected learning outcomes

Transversal skills

- Set objectives and design an action plan to reach those objectives.
- Identify the different roles that are involved in well-functioning teams and assume different roles, including leadership roles.
- Take account of the social and human dimensions of the engineering profession.

- Write a scientific or technical report.

Teaching methods

The course will combine participatory lectures with a project on designing a learning environment, using it in a controlled experiment, analysing the learning effects with statistical methods and writing a report.

Expected student activities

The project will include a few milestones to be delivered along the semester.

Assessment methods

- Project + exam
- 50 / 50

Supervision

Office hours	No
Assistants	Yes
Forum	Yes

Resources

Moodle Link

- https://go.epfl.ch/CS-411