HUM-432

How people learn: Designing Learning Tools I

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Cursus	Sem.	Type
Humanities and Social Sciences	MA1	Obl.
Learning Sciences		Obl.

Language of teaching	English
Credits	3
Session	Winter
Semester	Fall
Exam	During the semester
Workload	90h
Weeks	14
Hours	**3 weekly**
Courses	2 weekly
Project	1 weekly
Number of positions	**70**

Remark

Une seule inscription à un cours SHS+MGT autorisée. En cas d'inscriptions multiples elles seront toutes supprimées sans notification.

Summary

The students will understand the cognitive and social factors which affect learning - particularly in science and engineering. They will be able to use social research techniques as part of the design process to understand end users.

Content

General Aim: To enable participants to understand the ways in which professionals learn their profession - with a particular focus on learning in scientific and engineering domains.
General Description of Material:The ability for individuals and organisations to learn is often regarded as central to their survival and success in the contemporary world. But how do professionals (like engineers) learn their profession? Learning is partially a psychological concept, but professionals operate in social contexts and so an understanding of professional learning also draws on sociological research. Therefore understanding professional learning will involve a multi-disciplinary approach.
Plan of the course:Through exploring a number of types of studies on different aspects of learning, participants will build an understanding of concepts from learning sciences. Students will also participate experiments to give them concrete experiences of adult learning in practice. Alongside this, student will complete a simple educational design process so they will come to understand the techniques of pedagogical design.

Keywords

Learning Sciences, Education, Social and Behavioural Science Research, Interdisciplinary Studies, Empathy Studies

Learning Outcomes

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

- Describe the way in which information is processed and memories formed in humans, referring to Attention, Working Memory, Long Term Memory and related concepts
- Describe the role of motivation, emotion and emotional self-regulation in relation to learning
- Describe the role of micro-social factors (interaction with teachers, peers and others) in accounting for learning
- Identify examples of how macro social factors (e.g. gender etc.) impact upon the learning of different social groups
- Apply this knowledge to understand real-life learning situations
- Carry out participant observation in learning and analyse the data from this (Empathy studies)
- Carry out some planning and design tasks (brain storming, multi criteria decision making, risk analysis, user impact analysis) associated with design projects

Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Communicate effectively, being understood, including across different languages and cultures.
- Take account of the social and human dimensions of the engineering profession.
- Assess one's own level of skill acquisition, and plan their on-going learning goals.
- Collect data.

Teaching methods

There will be in class lectures, questions and group discussions. Students will also carry out/participate in experiments in class time.

Expected student activities

Participate in in-class discussions and activities. Complete required design/project/group activity.

Assessment methods

30% Group report for design project
70% Exam

Resources

Bibliography

Tormey, R and Isaac, S. with Hardebolle, C. and LeDuc, I. (2021) Facilitating Experiential Learning in Higher Education; Teaching and Supervising in Labs, Fieldwork, Studios, and Projects. London: Routledge
Bransford et al. (2000) How People Learn: Brain, Mind, Experience and School. Washington D.C.: National Academy Press.
Illeris, K. (2009) Contempory Theories of Learning; learning theorists ... in the own words. London: Routledge.
Jarvis, P. et al. (2003) The Theory and Practice of Learning, 2nd Edition. London: Routledge.

Ressources en bibliothèque

- Find the references at the Library

Moodle Link

- https://go.epfl.ch/HUM-432