

MGT-406

Design in innovation: creation for adoption

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Cursus	Sem.	Type
Management, Technology and Entrepreneurship minor	E	Opt.
Managmt, tech et entr.	MA2, MA4	Opt.
Minor in Engineering for sustainability	E	Opt.
Neuro-X	MA2, MA4	Opt.

Language of teaching	English
Credits	4
Withdrawal	Unauthorized
Session	Summer
Semester	Spring
Exam	During the semester
Workload	120h
Weeks	14
Hours	4 weekly
Lecture	2 weekly
Exercises	2 weekly
Number of positions	50

It is not allowed to withdraw from this subject after the registration deadline.

Summary

Challenges in health, environment or media show how adoption is critical for innovation. The course delves into design methodologies to rethink innovation from a human point of view. Creativity, transdisciplinary approaches will allow to build solutions bringing benefits to citizens and the economy.

Content

Warning: the first three weeks are instrumental to perform the project, as they provide specific tools and the core theoretical background.

Climate change, computer based health services, trust and media: all these essential topics require more than science, technology and business: they need human involvement and adoption. Recent failures of metaverse and NFT underline how adoption is core to innovation. Facing this challenge means to understand needs from factual and cultural points of view, to take in account and understand human perception. Design, and more generally culture, have shown to be key players between technology and society, from the Renaissance up to the decentralisation of computing resources. In this course, we delve into human needs and perception, investigate how they are influenced by a cultural and socio-economic context and, eventually, experiment creative methodologies embedding such dimension into the innovation process.

The course aims to provide:

- A theoretical framework in design research, with emphasis on the creative process, user experience psychology and innovation process.
- An overview of current design practices, with case studies from various domains.
- Tools and skills to address real problems with real people, through an applied project performed in small groups.

Throughout the semester, you'll experiment creative approaches to generate disruptive yet sustainable solutions, by focusing on user perception. This means to generate ideas and prototypes, but also understand how creative solutions lead to knowledge about human perception to predict adoption.

This course will address economical dimensions, looking at created value, delivered value and captured value, as these components are essential to generate sustainable innovation.

Projects will be related to a current research topic from the EPFL+ECAL Lab, allowing insights from ongoing innovation and research projects, interaction with researchers, practioners and stakeholders. User observations and tests will be performed with real citizens.

Keywords

Disruptive innovation, design research, user experience psychology, sustainability, creativity, prototyping, design, value creation, value capture, business models.

Learning Prerequisites

Required courses

None

Important concepts to start the course

Creativity, User perception, Innovation, Design

Learning Outcomes

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

- Present results and knowledge outcomes
- Explain principles of human adoption in disruptive innovation.
- Distinguish roles of culture in innovation and associated methodologies
- Develop creative strategies introducing human perception into innovation projects.
- Conduct semi-structured interviews
- Develop prototypes suitable for user experience testing.
- Describe basics of user experience psychology
- Assess / Evaluate human perception of a proposed solution
- Integrate the economic dimensions of a solution and their impact on human perception
- Present solution to third parties

Transversal skills

- Demonstrate a capacity for creativity.
- Make an oral presentation.
- Demonstrate the capacity for critical thinking
- Communicate effectively, being understood, including across different languages and cultures.
- Use a work methodology appropriate to the task.

Teaching methods

Readings, collective work, ideation, project development, building prototypes, user observations.

Expected student activities

Group work, ideation / brainstorming, building prototypes, going into the field, talking with users and customers.

A maximum number of 50 students will be accepted in this course, however students are encouraged to attend the first two classes even if there are no spaces left on IS Academia. Please note that those students that have not attended since the first class will not be accepted.

Assessment methods

Presentation of the challenge definition, prototypes and documentation of the project will be graded as follow:

- Mid-term project brief 25%
- Project result 25%
- Project presentation 25%
- Conclusive report 25%

Supervision

Office hours	Yes
Assistants	Yes
Forum	No
Others	external experts

Resources

Virtual desktop infrastructure (VDI)

No

Bibliography

- Yves Mirande, Nicolas Henchoz, Design for Innovative Technology, from Disruption to Acceptance, Routledge, 2014
- Emily Groves, Romain Talou, Andrea Schneider, and Nicolas Henchoz. 2022. Storing cultural archives in synthetic DNA: An integrated prospective design investigation. DRS Biennial Conference Series (June 2022).
- Nicolas Henchoz, Margaux Charvolin, Delphine Ribes, Lara Défayes, Cédric Duchêne, Emily Groves, and Andreas Sonderegger. 2021. Ming Shan Digital Experience: Immersive Technology for Traditional Taoist Meditation. Proc. ACM Comput. Graph. Interact. Tech. 4, 2 (August 2021), 24:1-24:10

Ressources en bibliothèque

- [Design for Innovative Technology / Mirande](#)

Références suggérées par la bibliothèque

- [Storing cultural archives in synthetic DNA / Grooves](#)
- [Digital Experience / Henchoz](#)

Websites

- <http://www.epfl-ecal-lab.ch>

Moodle Link

- <https://go.epfl.ch/MGT-406>