D. Thinking: real problems, human-focused solutions

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Summary
This course aims to engage students into multidisciplinary collaboration to tackle real world problems with a human centered approach. It will also provide knowledge about the role of design in innovation.

Content
With human centered creative approach, students are encouraged to discover through observation what is meaningful and to whom, generate empathy with users, find a specific focus to the challenge and ideate on possible solutions. These must then be quickly prototyped, tested and iterated based on results. Students will work in teams to address a challenge. Several challenges will be proposed by the EPFL+ECAL Lab, EPFL’s design research center. During the course of these challenges, students will learn the different tools and exercises to generate insights, collaborative working, idea building, rapid prototyping and iterative testing. They will also get global vision about how design impacts innovation: major trends, specific role of Design Thinking, insights in design research from different point of views, design, psychology and engineering. The course will include a first phase of 4 weeks dedicated to basic knowledge, tools appropriation and definition of the challenge by each team. The second phase of 10 weeks is focused on providing possible solutions for the defined challenge.

Keywords
innovation, design thinking, rapid prototyping, user empathy, ideation

Learning Prerequisites
Required courses
None

Important concepts to start the course
Empathy, User perception, Innovation, Design

Learning Outcomes
By the end of the course, the student must be able to:
• Propose new concepts
• Synthesize user needs
• Sketch ideas
• Elaborate mock-up
• Assess / Evaluate outcome
• Advise on solutions
• Discuss on design thinking
• Assess / Evaluate prototyping strategies

Transversal skills
• Assess progress against the plan, and adapt the plan as appropriate.
• Set objectives and design an action plan to reach those objectives.
• Communicate effectively with professionals from other disciplines.

Teaching methods
Lectures, guest lectures, case method, building things

Expected student activities
Group work, ideation / brainstorming, building prototypes, going into the field, talking with users and customers.
Attendance at every session is mandatory. Expect a higher than usual workload for this course.

A maximum number of 30 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 as well as class participation will be graded as follow:
• Challenge definition: 30%
• Ten-week project: 50%
• Class participation: 20%

Supervision
Office hours TBD, exercises

Resources
Bibliography
Victor Papanek, *Design for the Real World*, Thames and Hudson, 1984
And more to come before the start!

Ressources en bibliothèque
• Design for the Real World / Papanek
• Design for Innovative Technology: from Disruption to Acceptance / Henchoz

Websites
• [http://www.epfl-ecal-lab.ch](http://www.epfl-ecal-lab.ch)