### CS-486 Interaction design

Pu Pearl

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<tr>
<th>Cursus</th>
<th>Sem.</th>
<th>Type</th>
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<tr>
<td>Computer science</td>
<td>MA2, MA4</td>
<td>Opt.</td>
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<tr>
<td>Cybersecurity</td>
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<td>Data Science</td>
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<td>Digital Humanities</td>
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<td>Robotics, Control and Intelligent Systems</td>
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<td>SC master EPFL</td>
<td>MA2, MA4</td>
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**Language of teaching**: English  
**Credits**: 6  
**Session**: Summer  
**Semester**: Spring  
**Exam**: During the semester  
**Workload**: 180h  
**Weeks**: 14  
**Hours**: 4 weekly  
- Lecture: 2 weekly  
- Exercises: 1 weekly  
- Project: 1 weekly

### Summary

This course focuses on goal-directed design and interaction design, two subjects treated in depth in the Cooper book (see reference below). To practice these two methods, we propose a design challenge, which is further divided into mini-projects evenly spaced throughout the semester.

### Content

**Design methods for HCI**

- What is HCI: its aims and goals
- Design thinking
- Goal-directed Design
- Mental model and different types of users
- Qualitative research and user interviews
- User modeling: persona and empathy diagram
- Scenarios, requirements and framework design
- Visual design
- Information Visualization design

**Basic prototyping methods for HCI**

- Storyboarding
- Context scenario
- Interactive prototype
- Video prototype

**Human computer interaction evaluation methods**

- Cognitive walkthrough
- Heuristic evaluation
- Evaluation with users

### Keywords

Interaction design, design thinking, user interviews, ideation, storyboard, context scenarios, digital mockup, user evaluation, video prototyping.

### Learning Prerequisites

**Required courses**

Interaction personne-système

**Recommended courses**
Open to students enrolled in the Master and PhD programs in IC.

**Important concepts to start the course**
Goal-directed design, design thinking, user needs assessment, user interviews & observation, ideation, prototyping, evaluation

**Learning Outcomes**
By the end of the course, the student must be able to:
- Interview users and elicit their needs using the goal-directed design method
- Design and implement interfaces and interactions
- Project management: set objectives and device a plan to achieve them
- Group work skills: discuss and identify roles, and assume those roles including leadership
- Communication: writing and presentation skills
- Interview users and elicit their needs using the goal-directed design method
- Design and implement interfaces and interactions
- Project management: set objectives and device a plan to achieve them
- Group work skills: discuss and identify roles, and assume those roles including leadership
- Communication: writing and presentation skills

**Teaching methods**
Lectures, flipped classroom lectures, exercises, hands-on practice, case studies

**Expected student activities**
Participation in lectures, exercises, user interviews, ideation sessions, readings, design project, project presentation

**Assessment methods**
The assessments consist of five in-class open-book exercises, each lasting one hour. Three of these exercises will be randomly selected for grading. Additionally, there will be two mini-projects that will be graded based on group performance. Furthermore, students' individual engagement in group activities, including user interviews, ideation, prototyping, and peer evaluation, will also be evaluated to determine individual performance.
30% open-book exercises (done in class, open notes, open book) - individual performance
20% individual engagement in group activities such as user interviews - individual performance
50% project - group performance

**Resources**

**Bibliography**
About Face 3: The Essentials of Interaction Design by Alan Cooper et al. (available as e-book at NEBIS)

**Ressources en bibliothèque**
- About Face 3 / Cooper

**Moodle Link**
- https://go.epfl.ch/CS-486

**Videos**
- https://mediaspace.epfl.ch/channel/CS-486%2BInteraction%2BDesign/29793?&