The Human Factor (THF)

Week 1: Introduction to Human Factors

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Welcome from the teaching team!

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Who is taking this course?

Take a post-it note and write down if you are:

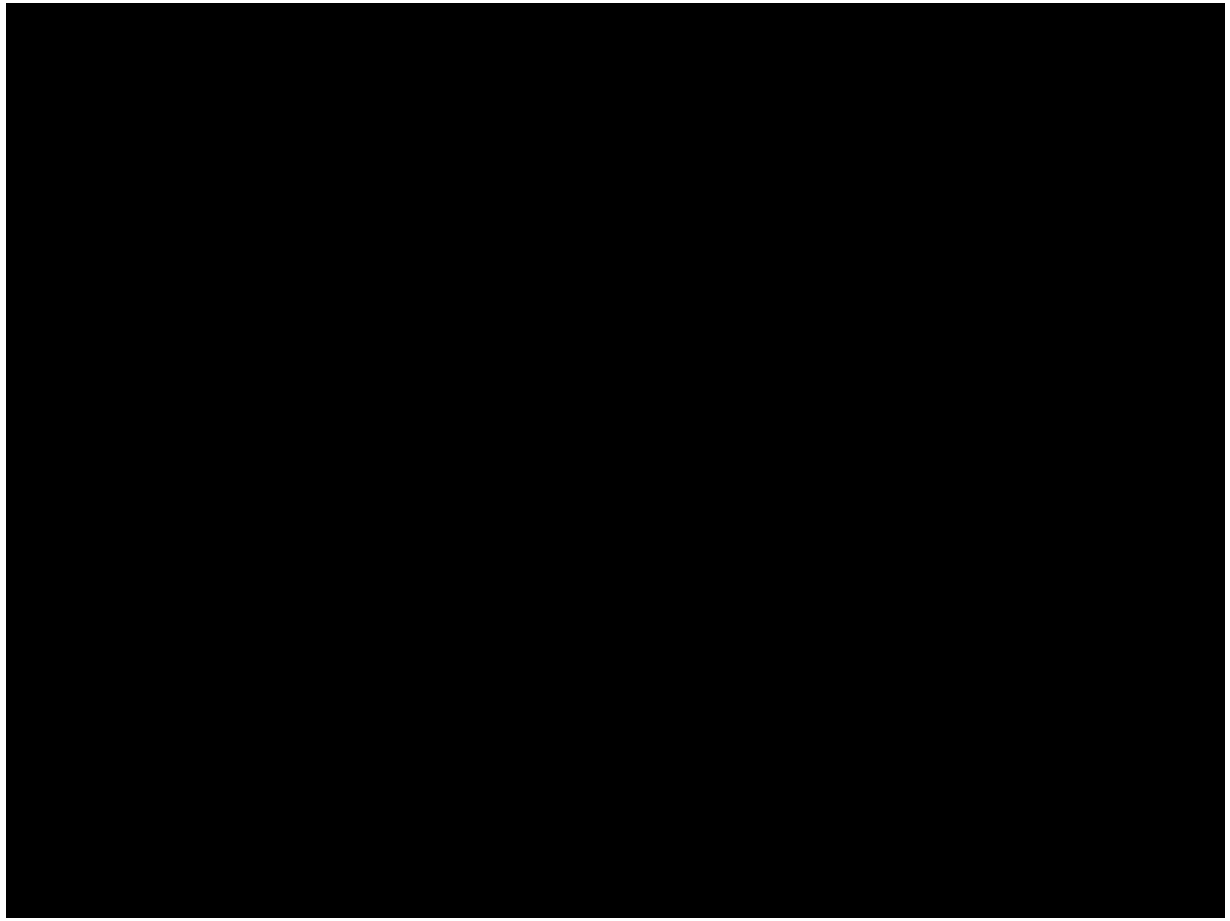
- A UG4 or Masters student
- Your programme (Design Informatics, Computer Science, Cognitive Science, Linguistics, etc)
- If you have taken a HCI or similar course before
  - If yes, write down which course

Week 1 Outline

- What is this course about?
- Key concepts
- Course structure and assessment tasks
- Next steps

What is this course about?

Please raise your hand if you've ever had a similar experience



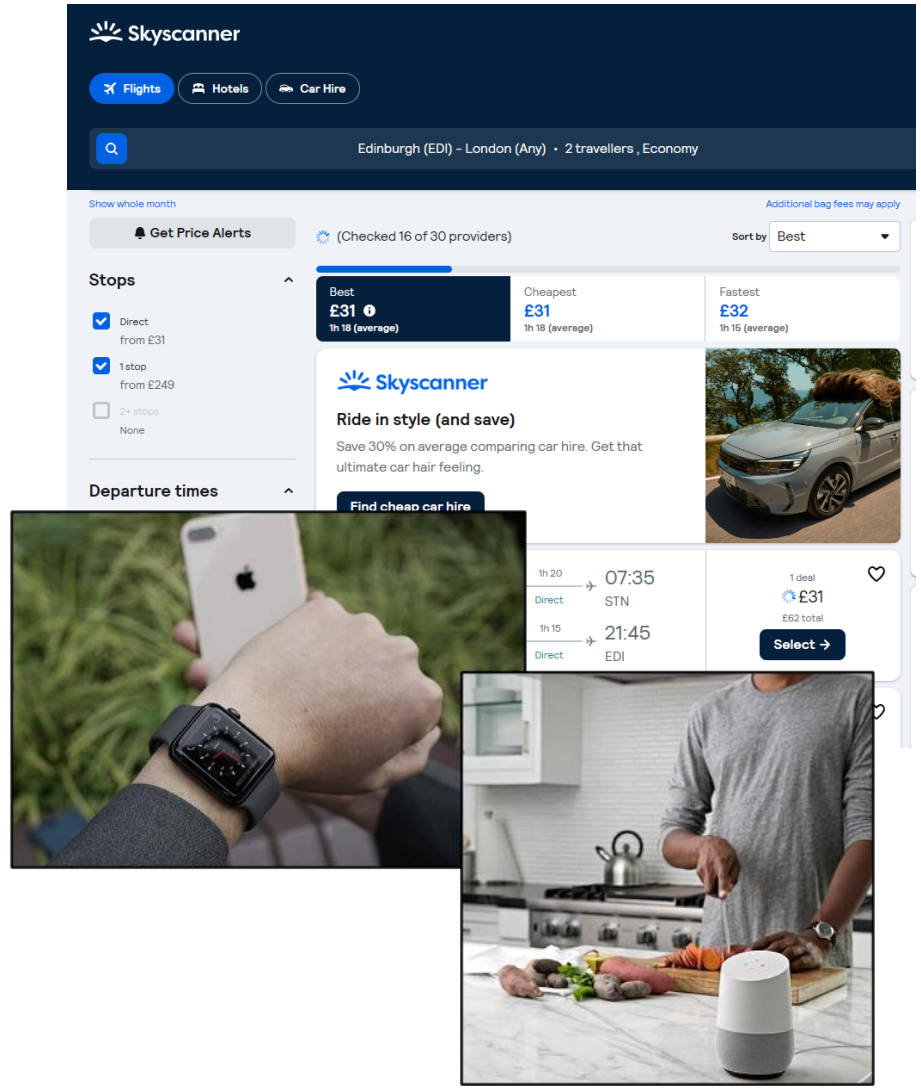
https://www.youtube.com/watch?v=HtTUsOKjWyQ

Experience with Technology

Consider the interactive technologies you use:

1. Think of any that are hard, confusing, or make you feel frustrated when you use them.
2. Which ones are enjoyable, easy or satisfying to use? Why?

Discuss in pairs and share with the class



This course is about the design and evaluation of interactive technologies that people can use

- If the user can’t use it, it does not work.
- Designing a good system is multifaceted.
- Whether a system is good or usable always depends on the context in which it is used.

This course will extend the Informatics HCI course in that it places more emphasis on the people who use technology, and the context in which technology is used.

Course Learning Outcomes

On completion of this course, you should be able to:

- Understand how relevant aspects of context affect the interaction between people and technical systems, with a particular emphasis on anthropometric, behavioural, cognitive, and social factors (ABCS)
- Assess the usability of a technological artefact, including both hardware and software, given a particular context of use
- Integrate user experience and human factors into the process of designing or improving a technological artefact
- Ensure that systems are resilient and learn from user errors

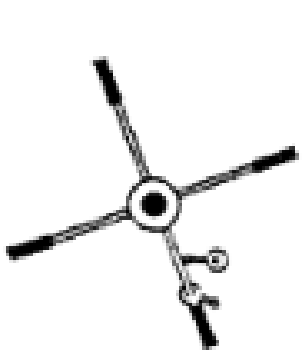
Key Concepts

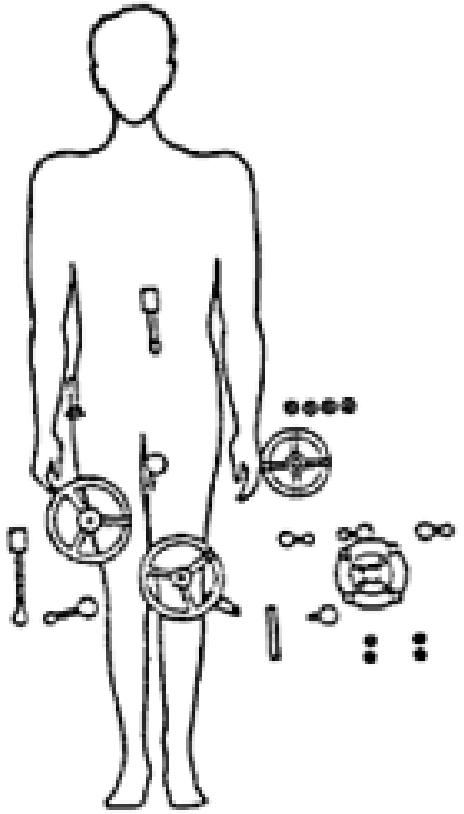
Human Factors

The factors that impact the way in which a person would interact with a piece of technology

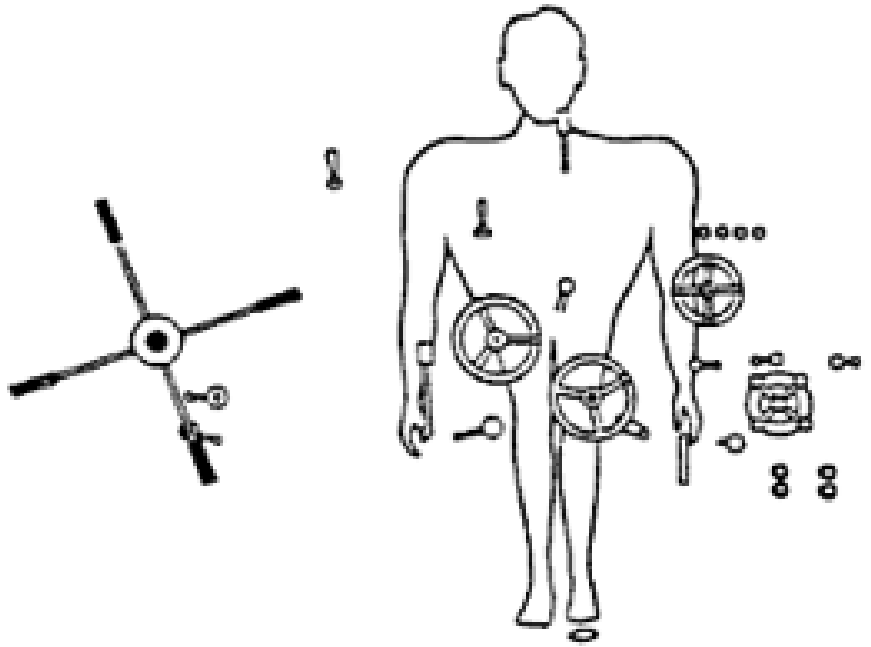
- Anthropometric factors: physical, anatomical and physiological aspects
- Behavioural factors: what can users see, perceive and act on?
- Cognitive factors: what cognitive processes are involved when someone uses a system?
- Social factors: what is the social context in which a system is used?

Ritter/Baxter/Churchill (2014), Foundations for Designing User-Centred Systems, Springer





http://en.wikipedia.org/wiki/Lathe
http://www.lathe-machine.in/pics/lathe_05.jpg



The controls of a lathe in are not within easy reach of the average man, but are so placed that the ideal operator should be 137 cm (4.5ft) tall, 61cm (2 ft) across the shoulders and have an arm span of 234cm (8ft). (Pheasant, 1986)

Technology-centric design --> **human-centred design**

http://en.wikipedia.org/wiki/Lathe
http://www.lathe-machine.in/pics/lathe_05.jpg

Principles of Human-Centred Design

(also known as *User-Centred Design*, *User Experience Design*, *Design Thinking*)

- **Human-centred:** focused on people, activities and context from the project start
- **Participative:** involving target users as members of the design team
- **Empirical:** evaluating usability and user experience in trial studies with end users
- **Iterative:** designing, evaluating, and redesigning as a regular cycle until results satisfy the user experience needs

Usability & User Experience

Usability

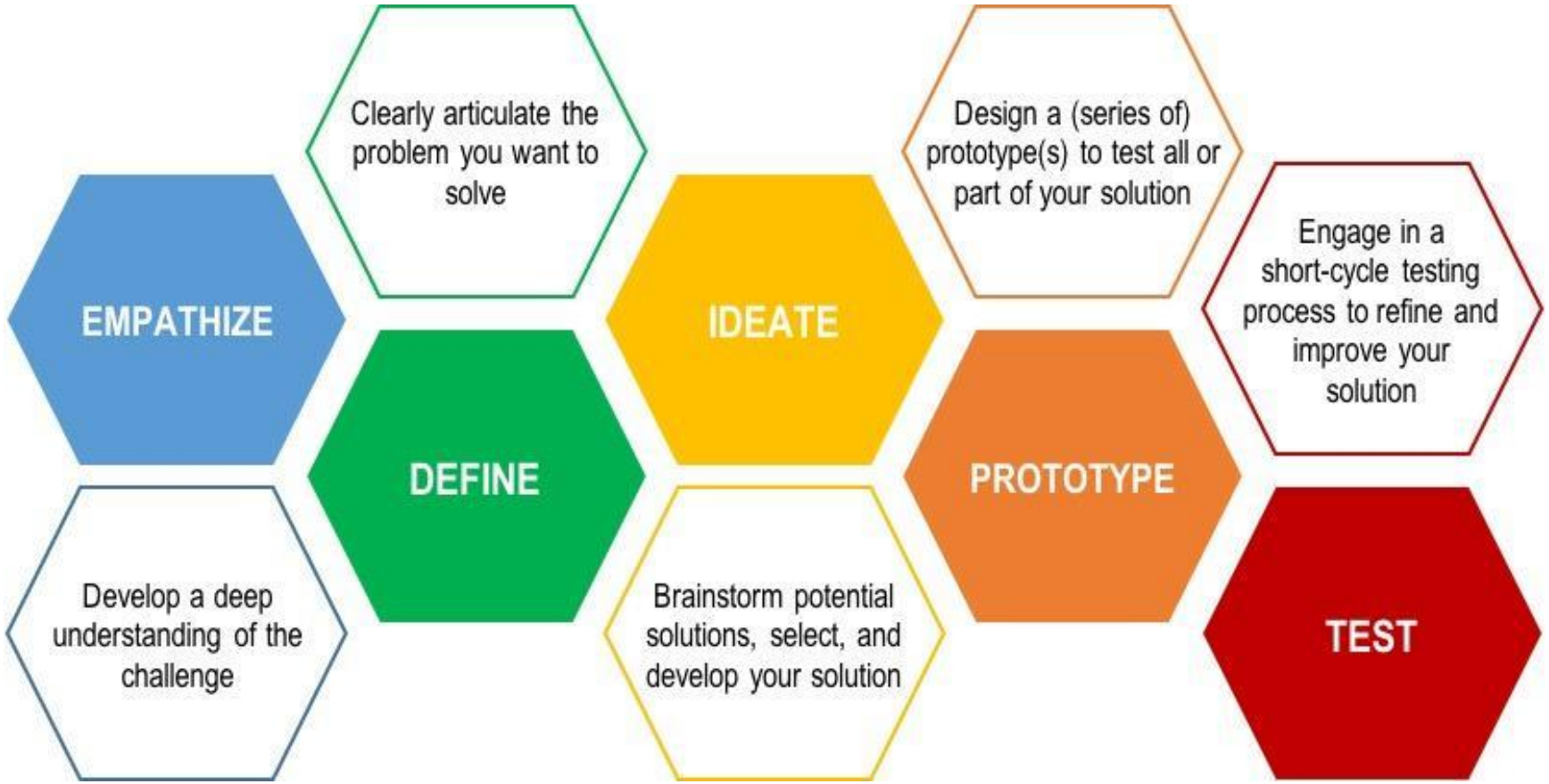
Effective to use
Efficient to use
Safe to use
Have good utility
Easy to learn
Easy to remember how to use

User Experience

The way people feel about technology and their satisfaction when using it, looking at it, holding it, e.g.,
Satisfying
Enjoyable
Helpful
…

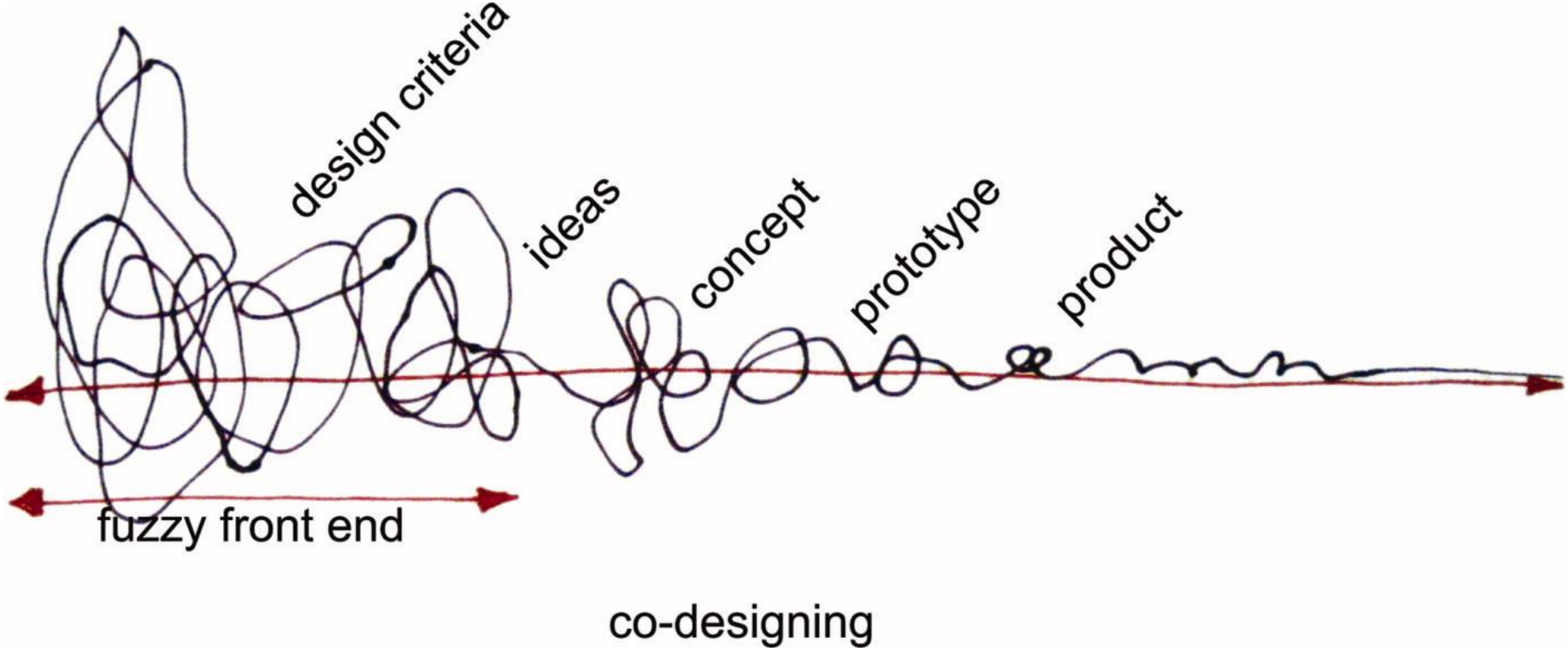
Sharp et al (2019)

Human-Centred Design (Stanford model)



http://longevity3.stanford.edu/designchallenge/design-thinking-process/

Human-Centred Design Process in the Real World



Sanders EB, Stappers PJ. Co-creation and the new landscapes of design. Co-design. 2008 Mar 1;4(1):5-18 https://doi-org.ezp01.library.qut.edu.au/10.1080/15710880701875068

Course Structure and Coursework

Lectures and Workshops

Lecture: Tuesday 16:10-17:00

- Lectures will be in-person
- Lectured will be recorded and uploaded to Learn

Workshop: Thursday 16:10-17:00

- These workshops are designed for students to work through activities directly related to the coursework, discuss any of the course content, ask questions, or get feedback on coursework.
- You can also ask questions via email or on Piazza

Flipped Classroom

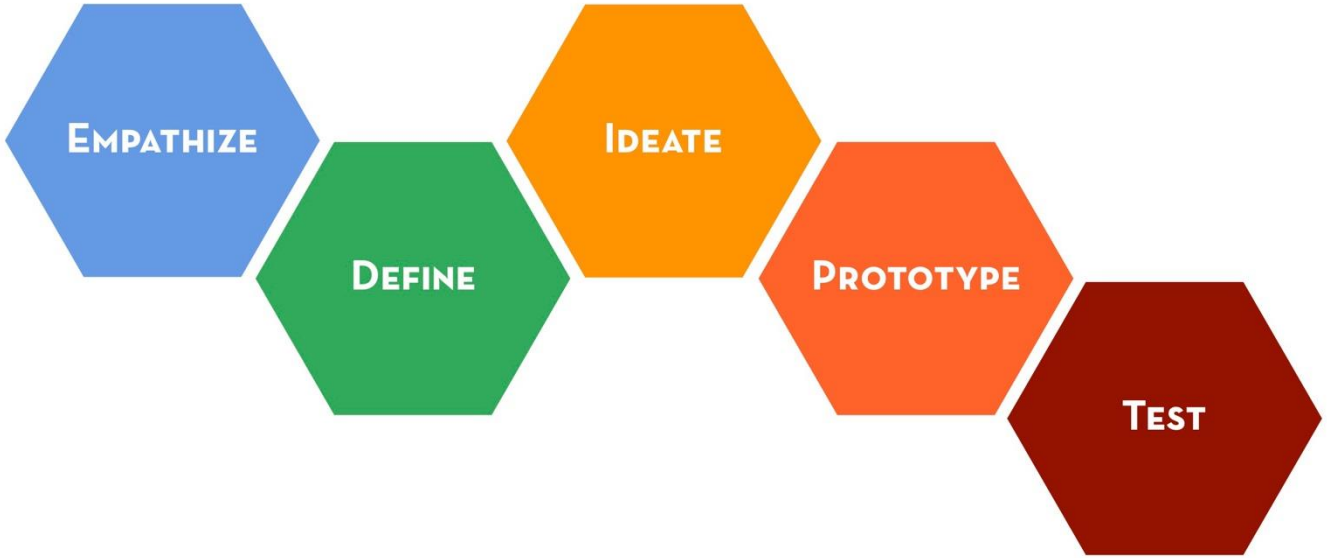
- Before class you will work through materials
- During class we will work on activities designed to review the material and deepen your learning
- Content for each week will be available on OpenCourse by Wednesday of the previous week
  - Materials for week 2 will be published by Wednesday of Week 1 and so on

Assessment Tasks

No Exams!

Submissions via Learn

Assessment will follow a human-centred design process



Coursework 1
Presentation

Coursework 2
Report

CW1: Presentation

Weight	0% (Formative)
Assessment Type	Presentation
Description	The aim of this assessment is to present the work your group has done towards CW2. This will be presented via a group presentation in class where you will receive feedback.
Relates to learning outcomes	1, 2, 3
Individual/group	Group
Due date (indicative)	During Class Week 6

CW2: Report

Weight	100%
Assessment Type	Report
Description	The aim of this assessment is to evaluate the usability and user experience of an existing technology and create a series of technology designs to address the issues found with particular emphasis on human factors. Your group will also create a prototype for one of the design ideas proposed. This will be presented via a report. The report should be 4000-5000 words. There will be detailed instructions on Learn.
Relates to learning outcomes	1, 2, 3, 4
Individual/group	Group
Due date (indicative)	Friday 03/04/2026 12:00

Coursework Steps

Week 1:

- **Team formation:** form a group of 3 and register your group on Learn by next Tuesday. This will be the group you will work with across CW1 and CW2.
- **Pick a topic:** pick from the examples provided or propose your own.
- **Pick a technology:** each group will then pick a technology that fits that topic.
- Email Sarah with your topic, technology and group number. Your topic and technology will need to be approved before you start.

Example Assessment Topics

- Sustainability
- Health and Wellbeing
- Education
- Creativity

Next Steps

- **Team formation:** Thursday workshop activity
- **Pick a topic:** consider a topic you might be interested in from the examples provided or propose your own.
- **Pick a technology:** consider some technologies that fit that topic.

Any Questions?