UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Cognitive Ergonomics

2122-2-F5105P007

Learning area

APPLIED EXPERIMENTAL PSYCHOLOGICAL SCIENCES

Learning objectives

By the end of the course, students should:

Knowledge and understanding

- be aware of the implications of psychological research for improving the design and evaluation of computer systems
- be able to explain the importance of user-centred design
- consider how technologies should be designed to support communication and collaboration, and how their design can affect these processes

Applying knowledge and understanding

- consider how technologies can affect user experience and how they can encourage changes in behaviour

- be able to apply major theories in cognitive psychology to practical case studies
- communicate ideas and research findings by written means
- group work.

Contents

Purpose of the course is to provide basic knowledge about cognitive ergonomics and Human Computer Interaction and to provide insights about those peculiar aspects that link design to ergonomics. Special attention will be given to the “communicative” aspects of user-centered design, both in reference to usability and aesthetic pleasantness, and to the methods developed to evaluate the User Experience.

Detailed program

- Cognitive ergonomics and cognitive psychology: foundations of cognitive processes; Perception, psychophysical methods, memory and attention, embodied cognition.
- Usability, accessibility and acceptability. Designing usable products: affordance, mapping and feedback.
- Interface Analysis: graphic symbols, cognitive tools. Design for the interaction: developing Personas and Scenarios; requirement analysis: interviews and questionnaires; probes and card sorting techniques; case studies. Participative Design.
- How we think: thinking errors and how to prevent them.
- User experience. The model of Hassenzhal: self products and act products.
- Evaluating a product: euristic evaluation; discount euristic evaluation and cognitive walkthrough; cooperative evaluation; codiscovery; evaluation without being there; controlled experiments.
- Evaluation in practice: usability metrics and mesures; reporting usability evaluation results.
- Gaming and gamification
- Measuring User Experience

Prerequisites

Basic knowledge of cognitive psychology and methods of research in psychology. Students lacking such basic knowledge are encouraged to ask for a list of basic references.

Teaching methods

Frontal lectures with challenges and exercises. For this year only, lessons will be held remotely. Students are encouraged to develop an original project on the usability or user-experience of a device or a system or, alternatively, to design a new product or interactive system. Workshops with private companies are also planned. All course material (e.g., slides, readings) are made available on the e-learning website of the course.

*** Lessons will be held in presence, unless further COVID-19 related restrictions are imposed. ***

Assessment methods

Oral exam on textbooks and on handouts of the lectures. For students attending lessons, an alternative to the oral exam is the presentation, in both written and oral form, of the working project developed during lessons. The exam will verify the level of mastery of the course contents with special attention with the link between theory and practice in developing user centered designed systems.

Textbooks and Reading Materials

Benyon, D. (2014). Designing Interactive Systems. A Comprehensive guide to HCI, UX and interaction design (Chapters 1-13). Pearson.