Course syllabus

Cognition
Kognition

EXTA65, 4.5 credits, G1 (First Cycle)

Valid for: 2025/26
Faculty: Faculty of Engineering LTH
Decided by: PLED C/D
Date of Decision: 2025-04-14
Effective: 2025-05-05

General Information

Main field: Technology **Depth of study relative to the degree requirements:** First cycle, in-depth level of the course cannot be classified
Mandatory for: D1
Elective for: BME4, E4, F4, Pi4, R4
Language of instruction: The course will be given in Swedish

Aim

The course aims to give fundamental insight about the human being as a knowledge and information being as well as getting insight into cognition science as a discipline.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- Have knowledge of basic cognitive science phenomena: attention, memory, learning and decision-making
- Have knowledge of basic concepts in usability, for example: system image, affordance, signifier, constraints, mapping, feedback, mental/conceptual model
- Have a basic understanding of how the design of technology systems interacts with human cognition and why

Competences and skills
For a passing grade the student must

- be able to investigate a technology system with respect to usability and user experience and be able to suggest and motivate improvements
- be able to connect the design of a technology system to cognitive science concepts and phenomena

Judgement and approach
For a passing grade the student must

- be able to argue for the relevance of adopting a human-centered perspective on technology
- be able to demonstrate the complexity of human cognition and what this means for the design of technology systems
- be able to reflect on several different design solutions and weigh their pros and cons against each other

Contents

In the course "Cognition," you will become acquainted with human cognition and how it affects our ability to interact with, develop, and understand technical systems. In the course, you will gain fundamental knowledge of how we humans understand our environment: what we pay attention to, what we remember, and how we make decisions or solve problems. You will also learn how to use what is known about human cognition to design better technical systems or products: you will gain a cognitive perspective on product design, usability concepts, and interaction design. Upon completion of the course, you will have taken the first step in being able to critically evaluate technical systems based on how they either support or hinder our cognitive processes.

Some of the concepts/phenomena you will become acquainted with in the course are:

Attention and memory. Top-down and bottom-up control of mental processes. Mental (conceptual) models and understanding. Affordances, constraints, and signifiers. Mapping and feedback. The gulfs of execution and evaluation in connection to Donald Norman's seven stages of action.

Examination details

Grading scale: TH - (U, 3, 4, 5) - (Fail, Three, Four, Five)
Assessment:

Midtest, written assignments and compulsory laboratory sessions and exercises.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Modules
Code: 0117. **Name:** Cognition.
Credits: 4.5. **Grading scale:** TH - (U, 3, 4, 5).

Admission

The number of participants is limited to: No
Kursen överlappar följande kurser: TEK210 MAMA20

Reading list

- Norman, D A: The Design of Everyday Things - Revised and Expanded Edition. Doubleday/Currency, New York, 2013.
- A few articles.

Contact

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