

HN2019 Cognitive Ergonomics 7.5 credits

(In Swedish: Kognitiv ergonomi 7,5 hp)

Educational level: Second cycle

Subject area: Technology and Health **Grade scale:** A, B, C, D, E, FX, F

Course offered by

School of Chemistry, Biotechnology & Health, Division of Ergonomics.

About the course

The course is structured with a mix of lectures at Campus Flemingsberg, lectures distributed by Zoom, home studies of the course literature and MOOC as well as literature handed out at lectures, individual and/or group assignments as preparations for mandatory seminars held at Campus or over Zoom.

Intended learning outcomes

After completing the course, the student shall:

- understand and apply knowledge about human cognitive prerequisites in the interaction between human-machine interface,
- analyze and suggest improvements of the interface in human-machine systems,
- understand and evaluate how allocation of functions in the human-machine systems affects the interaction of human-machine and system performance,
- visualize and apply cognitive aspects in a HTO analysis
- read, understand and discuss international scientific publications in the field of cognitive ergonomics.

Course main content

- The human as an information processing system
- Human cognitive prerequisites
- Usability design of the human-machine interface
- Methods of analysis and design for usability
- Distributed cognition
- Situation awareness
- Automation and allocation of functions human-machine system
- Find, read summarize and reflect on scientific articles on the subject

The course includes lectures, seminars, assignments, and a final written examination.

Examination

Compulsory attendance

All seminars is compulsory to attend since oral presentations and group discussions are part of the examination for SEM1-4. In special cases when missing a compulsory course activity there is a possibility to do a complementary assignment, which expenditure of time is equivalent to the duration of the missed course activity. Note that you can only do one complementary assignment during the course, and that such as an assignment should be agreed on by the examiner.

As part of the first 1.5 credit seminar the MOOC Technology and Work on human terms, chapter 7 should be completed. Further instructions about all seminars and assignments connected to the seminars will be published in Canvas.

Requirements for final grade

SEM1 (called SEM B in schedule) - Assignment and Seminar, 0.5 credits, grade scale P/F
SEM2 (called SEM D in schedule) - Assignment and Seminar, 0.5 credits, grade scale P/F
SEM3 (called SEM A in schedule) - Assignment and Seminar, 1.5 credits, grade scale P/F
SEM4 (called SEM C in schedule) - Assignment and Seminar, 1.5 credits, grade scale P/F
TEN1 – Examination, 3.5 credits, grade scale A, B, C, D, E, Fx, F

To get the grade P on a seminar passed written and oral presentation of assignments and active participation in seminars is required.

The final grade (A-F) is decided from the results of the final examination (TEN1) and passed grade for assignments and seminars.

TEN1- Home exam

Examination (TEN1) is made in the form of a home examination. You will randomly be given four in depth questions that you should consider in a written essay / report of 20-25 pages (reference list excluded).

The home exam will be distributed no later than 6 PM, 2021-12-14. If you are having trouble finding the home exam or do not get access to the exam, immediately contact the examiner through e-mail. The completed exam must be submitted to the examiner no later than 11 PM, 2022-01-16.

The exam should be written individually and will be checked for plagiarism. In case of plagiarism actions will be taken according to KTH policy.

Among the submitted exams, some will be randomly selected where the student also must undergo an oral examination to reasonably ensure that it is the student who wrote the essay.

The grading will be made from the criteria listed in Table 1 Appendix A. In general a higher grade is associated with demonstrated ability to argue, reflect and critically analyse and summarize the issues based on the literature and your own reflections.

Literature

The course literature is as follows:

- Norman, D.A. (2013). Design of Everyday Things (2013). ISBN 978046505065
- Bohgard, M. (ed.) (2009). Work and technology on human terms. Stockholm: Prevent.
- Material handed out during the course

Course web and communication

Course material, practical information, assignment and so forth will be distributed and available through the KTH-Canvas activity HN2019 HT21-1 Cognitive Ergonomics. Canvas will also be used for further communication.

Schedule and teachers

To be announced on KTH-Canvas at the start of the course.

Course administration

Mats Ericson, Head of course, E-mail: meric@kth.se, Mobile: +46-70-7494920

Examiner

Mats Ericson, professor, meric@kth.se

Appendix A

Table 1. Grading criteria for TEN 1.

Grade	Criteria
F	<ul style="list-style-type: none"> • Very limited knowledge and understanding of the literature and key issues. • A number of irrelevant and inaccurate claims. • Brief or unfinished essay which prevents assessment. • Deficiencies which may no longer be correct within a reasonable time frame
Fx	<ul style="list-style-type: none"> • Insufficient description of the issues related to the question. • Not supporting statements with references to literature or sources. • No clear structure of the essay and/or the text being hard to follow for the reader. • Brief and unstructured text. • Insufficient or inadequate resources.
E	<ul style="list-style-type: none"> • Covering the basic areas related to the issues that the question is related to. • Uses literature and references to support description of the issues. • Has a structure that makes it easy to follow and has a summary and conclusion.
D	<ul style="list-style-type: none"> • Has a structure that makes it easy to follow and has a summary and conclusion. • A careful review of the used literature has been carried out. • The home exam is well structured and well written. • The student demonstrates a good understanding of the literature and important empirical and theoretical issues.
C	<ul style="list-style-type: none"> • Has a structure that makes it easy to follow and has a summary and conclusion. • A solid understanding of the literature that has been used. • An ability to apply this understanding in well-structured arguments and presentations. • An ability to contextualize and compare the key parts of the literature that has been used.
B	<ul style="list-style-type: none"> • Has a structure that makes it easy to follow and has a summary and conclusion. • A high degree of independence and originality in the discussion and analysis of the literature used. • A high level of comparative ability and critical analysis. • Well-written reflections and interpretations that are based on the literature that has been used. • A high level of understanding of the relationship between theory and empirical material • Being able to relate the issues to examples or discuss how issues related to the question can be applied.
A	<ul style="list-style-type: none"> • Has an excellent structure that makes it easy to follow and has a summary and conclusion. • A high level of originality and critical synthesis • A high level of comparative ability. • Well written and self-reflections and interpretations that are based on the literature that has been used. • A deep understanding of the empirical evidence and theoretical issues. • Gives examples and discuss application of relevant theories or empirical issues. • Addresses major questions and counter-arguments that readers are likely to raise