



# FHN3004 Ergonomics and Human-technology-Organisation 7.5 credits

Ergonomi och Människa-Teknik-Organisation

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

## Establishment

Course syllabus for FHN3004 valid from Autumn 2012

## Grading scale

## Education cycle

Third cycle

## Specific prerequisites

Admission to postgraduate studies in relevant disciplines.

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

The overall purpose is to give participants a thorough knowledge and understanding of the work impact on the individual in terms of health, musculoskeletal and ergonomics role in operational efficiency. This includes how people's work activities interact with technology, organization and environment, the design of work systems and environments that promote health in the musculoskeletal system and contributes to the quality and efficiency in operations based on ergonomic knowledge. The concept of ergonomics is seen from the international definition, i.e. extensive physical, cognitive, work organizational and psychosocial aspects.

The students must demonstrate knowledge and understanding of

- theories and models in the area
- human capabilities and needs and how they meet the demands of working life
- current legislation

The students must demonstrate skills and ability to

- use methods to measure, analyze and assess the job requirements, the burden on the individual, the effects of short and long term, work activities and their interactions with technology, organization and environment
- use economic modeling to evaluate the ergonomic measures
- using the analytical models for work activities presented in the course
- propose measures to improve the working situation of the affected individuals while improving the efficiency of activities

The students must demonstrate judgment and approach by

- critically analyze and evaluate scientific literature in the field
- analyze and evaluate the results of studies and analyzes in the field and summarize the results both orally and in writing
- evaluate alternative and proposed action

## Course contents

Part I: Work Physiology with emphasis on the musculoskeletal system and biomechanics, Anthropometry, Hypotheses and theories of injury mechanisms and risk and health factors for the inconvenience, instrumentation, recommended limits and laws, The design of jobs and workplaces

Part II: Socio-Technical systems, MTO models, Ergonomics Task Analysis – Quality, Ergonomics and economics

## Disposition

The course consists of two main parts: Ergonomics and Human Factors

## Course literature

Toomingas, A; Mathiassen, S-E; Wigaeus Tornqvist, E (red.), **Arbetslivsfysiologi**, Lund 2008, Studentlitteratur

Utdrag ur: Wilson, J H; Corlett, E N (red.), **Evaluation of Human Work**, 3rd Edition, Boca Raton 2005, Taylor & Francis

Clegg, C W, **Sociotechnical Principles for System Design**, Applied Ergonomics 31(5), 463-477, 2000

Utdelat material och artiklar / Distributed material and articles

## Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Assignments, laboratory work, seminars and review of research articles.

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.