KURSPLAN
Människa-Teknik-Organisation, 5 högskolepoäng

Human Factors Engineering, 5 credits

Kurskod:	TMTR21	**Utbildningsnivå:**	Avancerad nivå
Fastställd av:	VD 2020-06-01	**Utbildningsområde:**	Tekniska området
Reviderad av:	Utbildningschef 2020-11-04	**Ämnesgrupp:**	AE1
Gäller fr.o.m.:	2021-01-01	**Fördjupning:**	A1N
Version:	2	**Huvudområde:**	Produktionssystem

Lärandemål

After a successful course, the student shall

Kunskap och förståelse
- demonstrate comprehension of people's functional abilities and limitations both physically and cognitively (information processing) in technology use and at work
- display knowledge of Swedish and international work environment legislation and of the benefits for different professional roles of applying human factors engineering

Färdighet och förmåga
- demonstrate the ability to use current methods in the field of human factors engineering to propose different alternatives for products and work processes
- demonstrate the ability to analyze the work organization and its impact regarding performance and wellbeing using a systems perspective

Värderingsförmåga och förhållningssätt
- demonstrate the ability to perform usability analysis including both anthropometric and cognitive interaction considerations
- demonstrate the ability to assess whether a real work situation is sustainable with a focus on relevant social and ethical aspects

Innehåll

The course provides knowledge and insights on how products and industrial systems can be designed taking into consideration people's natural strengths and limitations and result in usability, efficiency and sustainability. This also means in-depth knowledge of the interaction and collaboration between people and products, people at work and how they are affected by the surrounding technology and the organization.

The course includes the following elements:
- People's abilities and limitations regarding product and work design: physiology, load, physical aspects- including anthropometrics, cognition, work organization
- Socio-technical systems: theoretical basis, system models and applications, work organization

and the impact of various work organization solutions
- Design of human interface system – technology, automation and digitalization - allocation of functions human – technology, cost-benefit analysis and professional role specificity
- Swedish and international occupational health and safety legislation: framework law, regulations and system supervision

Undervisningsformer

Lectures, seminars, and project work.

Undervisningen bedrivs på engelska.

Förkunskapskrav

The applicant must hold the minimum of a bachelor's degree (ie. the equivalent of 180 ECTS credits at an accredited university) with at least 90 credits in Mechanical Engineering, Industrial Engineering and Management or Civil Engineering or equivalent, and 15 credits Mathematics. English Language requirements corresponding to English 6 in the Swedish upper secondary school (or the equivalent). The applicant must also have 1 year of qualified work experience. It is possible to apply for exemption from a bachelor's degree and 15 credits Mathematics if the applicant has at least 5 years of qualified work experience.

Examination och betyg

Kursen bedöms med betygen Underkänd eller Godkänd.

The final grade will only be issued after satisfactory completion of all assessments.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Projektuppgift	2 hp	U/G
Seminarier	3 hp	U/G

Kurslitteratur

The literature list for the course will be provided one month before the course starts.

Title: Production Ergonomics – Designing work systems to support optimal human performance
Authors: Berlin, C. & Adams, C. (2017)
Publisher: London - Ubiquity Press
ISBN: 978-1-911529-14-9 (available as free pdf)

Excerpts from:
Work and Technology on Human Terms
Authors: Bogard, M. et al (2009)
Publisher: Stockholm - Prevent
ISBN: 9789173650588

Compendium (digital, pdf format) and selection of articles.