



## COURSE SYLLABUS

# Human Factors in Product Realization, 7.5 credits

*Human Factors i produktframtagning, 7,5 högskolepoäng*

---

<b>Course Code:</b> TPEN11	<b>Education Cycle:</b> First-cycle level
<b>Confirmed by:</b> Dean Oct 29, 2021	<b>Disciplinary domain:</b> Technology (75%) and social sciences (25%)
<b>Revised by:</b> Director of Education Nov 15, 2023	<b>Subject group:</b> AE1
<b>Valid From:</b> Jan 1, 2024	<b>Specialised in:</b> G2F
<b>Version:</b> 3	

---

### Intended Learning Outcomes (ILO)

After a successful course, the student shall;

Knowledge and understanding

- demonstrate comprehension of physical and cognitive human functions, abilities and limitations in using products and at work
- display knowledge of how various aspects of work are interrelated from a system´s view as well as of legislation regarding the work environment
- display knowledge of methods for product and process development used within human factors and ergonomics

Skills and abilities

- demonstrate the ability to autonomously plan and conduct investigations and propose solutions in the field of work-human-technology-organization-environment
- demonstrate the ability to design and develop products and organizational processes by articulating human, task/activity, technology, situational, and environmental factors.

Judgement and approach

- demonstrate the ability to independently propose and compare different options for ergonomic design and development of products and processes and assess their consequences and risks
- demonstrate the ability to briefly assess whether a work situation is sustainable with a focus on relevant societal and ethical aspects.

### Contents

The course provides knowledge and insights about how products and industrial systems can be designed to make effective use of human natural strengths and limitations and result in usability, efficiency and sustainability. This also includes in-depth knowledge of the interaction and interplay between humans and products, humans at work and the influence of the surrounding technology, organization and environment.

The course includes the following elements:

- Socio-technical systems: theoretical foundations, system models and applications

- Activity centered design of products and work and the impact of complexity
- Human capabilities and limitations for product and work design
- Anthropometry and product design
- Allocation of functions to automation and human - machine system interfaces
- Workplace assessment and improvement
- Swedish and international occupational health and safety legislation

### **Type of instruction**

Lectures, exercises, and project work.

The teaching is conducted in English.

### **Prerequisites**

General entry requirements and completed courses 60 credits in first cycle including Sustainable Product Realization, 7,5 credits, Integrated product and Production Development, 7,5 credits and Industrial Production Systems, 7,5 credits (or the equivalent).

### **Examination and grades**

The course is graded 5,4,3 or Fail.

The final grade for the course is based upon a balanced set of assessments. The final grade will only be issued after satisfactory completion of all assessments.

Registration of examination:

Name of the Test	Value	Grading
Examination	5 credits	5/4/3/U
Project	2.5 credits	5/4/3/U

### **Course literature**

The literature list for the course will be provided 8 weeks before the course starts.

Title: Production Ergonomics – Designing work systems to support optimal human performance. Authors: Berlin, C. & Adams, C. (2017).

It can be bought at print from <http://www.waterstones.com/book/9781911529125>, or downloaded for free from <http://www.ubiquitypress.com/site/books/10.5334/bbe/>.