



## Course syllabus

Faculty of Technology  
Kalmar Maritime Academy

4SJ04A Human factors inom sjöfarten, 7,5 högskolepoäng  
Maritime Human Factors, 7.5 credits

**Main field of study**  
Maritime Science

**Subject Group**  
Shipping

**Level of classification**  
Second Level

**Progression**  
A1N

**Date of Ratification**  
Approved by Faculty of Technology 2020-06-08  
The course syllabus is valid from spring semester 2020

**Prerequisites**  
180 ECTS credits in a relevant area of maritime science and English language skills corresponding to English B, IELTS or TOEFL.

### Objectives

#### *Knowledge and understanding*

After completing the course, the participant shall have:

- Acquired knowledge and understanding of central concepts within research on human factors
- Acquired knowledge and understanding of relevant human factor theories and their progression over the past decades.
- Acquired knowledge and understanding of human physical and mental abilities and limitations in work situations.

#### *Competence and skills*

After completing the course the participant shall have:

- Attained the ability to describe, exemplify and reflect on how organizational issues and the work environment affect maritime safety and human performance.
- Developed the ability to analyse risks and accidents in a complex sociotechnical system, in order to argue for causes, and recommend solutions from a systems perspective
- Developed the ability to independently and based on scientific knowledge identify, analyse, and recommend solutions to a work environment or safety problem in a case study, presented verbally and in writing.

## Content

The course includes the following elements:

- Central concepts, theoretical background and how human factors research has developed over time
- Safety management in sociotechnical systems
- Human cognitive, mental and physical abilities, and limitations in work situations
- Methods and tools for analysis and evaluation of human work

The course is a distance course with scheduled learning activities, self-studies and voluntary course meetings on campus. Learning activities are done on the e-learning platform MyMoodle.

## Type of Instruction

Lecturers, seminars and activities on MyMoodle platform.

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

The examination is based on written reports, presentations and active participation during seminars.

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

## Course Evaluation

During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at Kalmar Maritime Academy's archive.

## Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: 4HE01A Human Element i Sustainable Shipping, 7,5 credits  
4SJ02A Human Element in Sustainable Shipping, 7,5 credits

## Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

## Required Reading and Additional Study Material

### Required reading

Aven, Terje. (2016). Risk assessment and risk management: Review of recent advances on their foundation. *European Journal of Operational Research*, 253(1), 1-13.

Berlin, Cecilia & Adams, Caroline (2017). *Production ergonomics. Designing work systems to support optimal human performance*. London: Ubiquity Press.  
<https://www.ubiquitypress.com/site/books/10.5334/bbe/>

Grech, Michelle Rita, Koester, Thomas & Horberry, Tim (2008). *Human Factors in the Maritime Domain*. Boca Raton: Taylor & Francis. 216 pages

Grote, Gudela. (2015). Promoting safety by increasing uncertainty—Implications for risk management. *Safety science*, 71, 71–79.

Leveson, Nancy. (2011). *Engineering a safer world: Systems thinking applied to safety*. Cambridge: MIT Press.

Hollnagel, Erik. (2014). Is safety a subject for science? *Safety Science*, 67, 21–24.

Hetherington, Catherine., Flin, Rhona., & Mearns, Kathryn. (2006). Safety in shipping: The human element. *Journal of Safety Research*, 37(4), 401-411.

Schröder-Hinrichs, Jens-Uwe., Hollnagel, Erik., & Baldauf, Michael. (2012). From Titanic to Costa Concordia—a century of lessons not learned. *WMU Journal of Maritime Affairs*, 11(2), 151-167.

#### **Reference literature**

Carayon, P. (2006). Human factors of complex sociotechnical systems. *Applied Ergonomics*, 37(4), 525-535. doi: 10.1016/j.apergo.2006.04.011

Salvendy, G. (2012). *Handbook of Human Factors and Ergonomics* (4th ed.). Hoboken, NJ: John Wiley & Sons.

Stanton, N. A. (2013). *Human Factors Methods: A Practical Guide for Engineering and Design* (2nd ed.). Farnham: Ashgate Publishing Ltd.

Wilson, J. R. (2014). Fundamentals of systems ergonomics/human factors. *Applied Ergonomics*, 45, 5-13.

Wilson, J., R., & Sharples, S. (2015). *Evaluation of human work*. (4th ed.) Boca Raton: CRC Press, Taylor & Francis Group.