



# IV2036 Systems Theory and Security 7.5 credits

Systemteori och säkerhet

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 IV2036 valid from Autumn 2008

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

## Specific prerequisites

**For "free movers" applying to single courses:**

- Completed, documented upper secondary education incl documented proficiency in English and
- 90 hp in Computer Science, Information technology or equivalent.

# Language of instruction

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

## Intended learning outcomes

Present system theories such that the students can understand how to approach IT related security holistically

Having completed this course the student will be able to

1. Define and describe vital concepts of general and particularized system theories and approaches, used as epistemology for the /ICT/security area
2. Explain and exemplify control principles according to various laws and models for steering and control
3. Analyze security and risk according to various laws and models for steering and control.
4. Communicate and analyze threat, risk and security as systemic phenomena and vice versa
5. Identify and report on a /ICT/ security problem, its reason or origin and suggested solutions as reported in /scientific/ journals
6. As a group member report and present in scientific manners, written descriptions and analyses of some current security phenomenon or problem including relating the phenomenon/problem to system theories.
7. Orally present and defend own and debate other groups' presentations

## Course contents

- Cybernetics and control systems
- General Systems Theory
- Living Systems Theory
- Threat - Risk - Protection
- Lectures and seminars in English.
- The course consists of the following themes:
  - • Holistic views on security and safety
  - • Security and control versus risk
  - • Information Security or Data Security?
  - • Environments for InfoSec
  - • Safety and security in the Systems perspective
  - • Example of system theories as control methods
  - • Can theory and practice unite?

## Disposition

Lectures, assignments, seminars.

## Course literature

Management Systems, Schoderbek et al.

Upplaga: Custom ed. (10 kap) Förlag: Boken finns att köpa i Akademibokhandeln, Kista År: 0

ISBN:

<>

Compendium:

Yngström, Louise: Systemic-Holistic Approach to IT Security, DSV, 1999 or later is available in the course's First Class

**(For students who plan a Swedish career the vocabular "Terminologi för informationssäkerhet, SIS HB 550, 2003" is strongly recommended. It is available at the students' expedition.)**

## Examination

- INL1 - Assignment, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F

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.

Written Examination, 4.5hp (TENA)

Assignment incl. seminars, 3.0hp (INLA)

- (INLA) Assignment is awarded grades Fail (F) or Pass (P/G). A failing assignment may be upgraded to pass, provided changes are addressed as evaluated by the examiner. Assignment can only be handed in at specified times and dates to be presented at scheduled seminars.
- (TENA) Written exam (4 hours) is evaluated as Fail (F), Fx, E-A. An Fx may be changed to E through additional exercises or assignments obtained through the examiner.

## Other requirements for final grade

The total grade is awarded based on the grading of the written exam (TENA).

## 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.