



# EP279V Cyber Security Analysis

## 3.0 credits

Cybersäkerhetsanalys

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

### Establishment

On 04/15/2021, the Head of the EECS School has decided to establish this official course syllabus to apply from autumn semester 2021, registration number: J-2021-0211.

### Grading scale

P, F

### Education cycle

Second cycle

### Main field of study

Computer Science and Engineering

### Specific prerequisites

- Knowledge and skills in basic programming, 6 credits, corresponding to course DD1315/DD1316/DD1337/ID1018.
- Knowledge in English corresponding to the upper secondary course English B/English 6.

### Language of instruction

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

## Intended learning outcomes

After passing the course, the student should be able to

- model threats in large-scale computer systems (including software, networks etc),
- simulate attacks in large-scale computer systems
- carry out risk analysis based on a model and simulation
- describe which defence mechanisms computer system can have
- report and present models, simulation, risk analysis, and defense strategy for a given system

in order to

- understand and explain which threats a specific system can have
- understand and explain how attacks work and propagate through a system architecture
- argue why certain risks should be prioritised
- choose the right defence to decrease risk.

## Course contents

Companies today have thousands of software based computer systems that all are depending on one another in a large complex network, a system-of-systems. That IT attacks succeed to a large extent due to this complexity. A company needs to understand the whole system while an attacker only needs find one way in. At the same time, there is a large set of attack types that are utilised and plenty of proposed defence mechanisms.

This course main content aims to develop students' understanding of:

- the complex IT landscape of today by creating models of such.
- which attacks that are utilised today to cause harm and how these can propagate through a large network.
- what defences there are and when they are best suited against different attack types.
- how risk can be calculated and used to prioritise security work.

By in the course provide;

- Lectures
- seminars
- guest lectures from the industry,
- a larger project, and
- several smaller course components within the project.

## Examination

- PRO1 - Project assignment, 3.0 credits, grading scale: P, 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.

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

## 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.