Linnæus University

Dnr: LNU-2024/4191

Course syllabus

Faculty of Technology
Department of Computer Science and Media Technology

2DV702 Internetsäkerhet, 7,5 högskolepoäng
Internet Security, 7.5 credits

Main field of study
Computer Science

Subject
Informatics/Computer and Systems Sciences

Level
First cycle

Progression
G2F

Date of Ratification
Approved 2014-10-03.
Revised 2024-11-06. Updated literature, content and examination and the objectives are adjusted.

The course syllabus is valid from spring semester 2025.

Prerequisites
Introduction to programming 7.5 credits (1DV501) and Computer Networks – Introduction 7.5 credits (1DV701) or the equivalent.

Objectives

Upon completion of the course, the student should be able to:
Knowledge and understanding

- A.1 describe the IT security landscape, especially network security
- A.2 describe the main threats against network security and the methods available to thwart them

Skills and abilities

- B.1 understand and use basic security mechanisms, e.g. cryptography
- B.2 identify intrusion attacks in computer systems and know how to prevent this type of security threat

Judgement and approach

- C.1 understand how hackers work and how to ethically work in Cyber Security

Content

This is a course in data security with a special emphasis on network security. The idea is to give a good coverage of threats against computers on a network and the tools to thwart them.
The following parts are treated:

- encryption and coding techniques
- authentication standards and applications
- electronic mail security
- security on the network and transport level
- network management security
- intruders, hackers and malicious software
- firewalls
- cloud security
- IoT security

Type of Instruction

Teaching consists of lectures and instructor-led laboratory sessions. The laboratories are either individual or conducted in groups. Attendance at some activities may be mandatory.

Examination

The course is assessed with the grades A, B, C, D, E 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).

Assessment of student performance is conducted through individual written exams and practical assignments. The practical assignments are examined through submitted reports. To pass the course, a passing grade is required for all components. The final grade is determined by: written exam (60%) and programming assignments (40%).

Resit examination is offered in accordance with Linnaeus University’s Local regulations for courses and examination at the first- and second-cycle levels.

In the event that a student with a disability is entitled to special study support, the examiner will decide on adapted or alternative examination arrangements.

Objectives achievement

The examination of the course is divided as follows:
Module 2501 Network Security, Lab 3.0 credits with the grading system UG
Module 2502 Network Security, Exam 4.5 credits with the grading system AF

The examination elements are linked to the course objectives in the following ways:
Module 2501 links to the course objectives: B.1, B.2
Module 2502 links to the course objectives: A.1, A.2, B.1, C.1

Course Evaluation

A course evaluation should be conducted during the course or in connection with its conclusion. The results and analysis of the completed course evaluation should be promptly communicated to students who have completed the course. Students participating in the next course instance should be informed of the results of the previous course evaluation and any improvements that have been made, no later than at the start of the course.

Overlap

The course cannot be included in a degree along with the following course/courses of which the content fully, or partly, corresponds to the content of this course:
1DV203 Network Security, 7.5 credits

Other Information

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
Stallings William, *Cryptography and Network Security - Principles and Practice global edition,* latest edition, Pearson. Pages 650 (800).

FTK, *Distributed material*. Pages 50.