Computer and network security 7.5 credits Z0008E

Dator- och nätverkssäkerhet

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2021-02-17

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Computer and network security 7.5 credits Z0008E

Dator- och nätverkssäkerhet

First cycle, Z0008E

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Datateknik	Computer Technology

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and courses of at least 60 credits at first cycle including the following knowledge/courses: Object oriented programming (D0010E Object-oriented Programming and Design), Basic knowledge in mathematics (M0049M Linear Algebra and Differential Equations), Boolean argebra (M0009M Discrete Mathematics), General computer skills and experience of rapport writing. Knowledge in English, equivalent to English 6.

Selection

Course Aim

The students should be able to:

1. Understand of security threats, mechanisms, protocols and services in computers and computer networks.

2. To analyze and evaluate the security properties of network applications.

3. To design and implement applications that provide or use security services in computer networks.

Contents

Introduction to security
Introduction to cryptography
Authentication, access control, security models
Intrusion detection, firewalls
Malware: virus/worm/trojans
Web attacks
Digital signatures
Public-Key Infrastructure (PKI) and Trusted Third Party (TTP)
Message authentication
Network authentication (Kerberos)
Email security
VPN technology (IPSec)
WWW security

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.
The education consists of lectures, laboratory work and assignments. The laboratories are presented orally and may be provided with a deadline for submission. There are no elective course elements. Unapproved students must retake the unsuccessful examination moment next time the course is given.

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Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Continuous examination with two written quizzes, assignment and laboratory work that gives a number of points. The grade in the course is based on how many points you have accumulated.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Laboratory work	U G#	2	Mandatory	A21	
0002	Two quizzes	G U 3 4 5	3.5	Mandatory	A21	
0003	Assignment report	G U 3 4 5	2	Mandatory	A21	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Jonny Johansson, HUL SRT 2021-02-17

Syllabus established

by Jonny Johansson, HUL SRT 2021-02-02

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