

Introduction

**TDDE62 - Information Security:
Privacy, System and Network Security**

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Agenda

- Topics
- Organization of the course
 - Exam
 - Labs
 - Prerequisites

Examiner

Gurjot Singh

Assistant Professor @ IDA/LiU



Course web: <https://www.ida.liu.se/~TDDE62/>

Basic information

TDDE62 covers several distinct topics within the field of information security.

- Each topic is taught by a different expert with in-depth knowledge of the field.

Examination

- Written exam (4 credits)
- 3 mandatory labs (2 credits)
- Labs are pass/fail
- Final grade depends on exam only

Course Topics

Network security

Three lectures, covering:

- **Secure network design**
 - Partitioning
 - Security devices (firewalls, IDS)
 - Trust relationships
- **Security of network protocols**
 - WiFi
 - ICMP, TCP, DNS, ...
- **Securing communications**
 - Network layer (IPSec)
 - Transport layer (TLS)

Andrei Gurtov

Professor @ IDA/LiU



Privacy

Two lectures, covering:

- **Basic concepts**
- **Privacy technologies**
 - Privacy-preserving communication, etc.
- **Privacy Preserving Data Publishing**
 - Differential privacy, k-anonymity, etc.



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System security

- **Introduction to system security**
 - Quick recap of basics
 - Hardware architecture
 - OS design
 - Security shortcomings in traditional OS and hardware architectures
 - Common attack techniques
- **Operating system security**
 - Security architecture
 - Security mechanisms
 - Hardware support

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Robert Malmgren

Independent consultant
Scada security expert



System security

- **Introduction to trusted computing**
 - Basic principles and concepts
 - TC technologies
 - Arm TrustZone, Intel SGX, etc.
- **Trusted computing + TC lab info**
 - Introduction to the TPM
 - Lab intro
 - TC wrap-up

Thomas Nyman

Engineer @ Ericsson

Expert in trusted computing
and mobile devices



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System security - malicious code

- **Introduction to malware defence**
 - Goal of malware writers
 - Infection methods
 - Antivirus and evasion techniques
- **Mobile malware and machine learning for malware defence**
 - Malware on mobile platforms
 - Machine learning for malware detection and analysis

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**Alireza
Mohammadinodooshan**

Postdoc @ IDA/LiU



Organization

Examination

Written exam – 4 hp/ECTS

- Covers all topics of the course
- 4 parts, corresponding to the 4 main topics
- Minimum score requirements **for each question** as well as **total score**

	network security	system security	malware	privacy	Total
Max	10	10	6	6	32
For grade 3	4	4	2.5	2.5	18
For grade 4	4	4	2.5	2.5	24
For grade 5	7	7	4	4	27

Labs

Three mandatory labs

- Two on network security
 - **FW** – Analyse network requirements and risks and configure a firewall
 - **Snort** – Configure a Network Intrusion Detection System (NIDS) to detect attacks
- and one on trusted computing
 - **TC** – Build a secure application using a (simulated) TPM
- Need to sign up in Webreg. Deadline **January 23**
 - **Unregistered students not allowed to register**, contact me if you have been admitted late to the course and are not registered by the deadline
- Hard hand-in deadline **March 13**
 - Hand in before this time to allow time for grading and possible re-submission!

Prerequisites

- Basic security course is required
 - We will assume that you know basic security concepts
- Network Security – Basic knowledge of TCP/IP networks is recommended
- System Security – Basic understanding of operating system design and computer hardware is recommended.

Other information

- Lecture slides will be made available on the course web site
 - Usually the day before, ***but no guarantees***
- Course literature on the course web site
 - Hand-outs
 - Collection of articles and book chapters