Fachhochschule Gelsenkirchen

Trusted Computing
→ Structure of the Course

Prof. Dr.
Norbert Pohlmann

Institute for Internet Security - if(is)
University of Applied Sciences Gelsenkirchen
http://www.internet-sicherheit.de

if(is) internet security.

Content

- Target group
- Learning goals
- Content of Course
- Student presentations
- Lab time
- Text book/Literatures

Content

- **Target group**
- Learning goals
- Content of Course
- Student presentations
- Lab time
- Text book/Literatures

Trusted Computing
→ Target group

- **Target group:**
  - Bachelor and Master Students with an interest in IT security

- **Organization**
  - The class will consist of lectures, student presentations and lab time.
  - 2 lecture slots per week
    - Tuesday 03:00 till 04:15 p.m. (Babbio Center, 640)
    - Thursday 03:00 till 04:15 p.m. (Babbio Center, 640)

- **Good precondition (Permission of the Instructor)**
  - Networks / Internet / Operation systems / Basis of IT Security
  - CS 573 (Fundamentals of Cybersecurity)

Trusted Computing
→ Content and correlation

- The content of the class is closely related to my ongoing research.
- We will work with the basic knowledge, backgrounds and the research results.
- We will handle “Trusted Computing” in the meaning of the Trusted Computing Group and “Trusted Computing” in a broader view of the IT security.
- IT security topics, which help to make our information society more trustworthy.

- **The main topics are:**
  - Internet Early Warning Systems,
  - Trusted Computing and
  - Anti-Spam

Content

- Target group
- **Learning goals**
- Content of Course
- Student presentations
- Lab time
- Text book/Literatures

Trusted Computing
→ Learning goal

- Good understanding of possible attacks and suitable countermeasures
- Gaining knowledge about construction, principles, architecture and the operation of security components and systems in the area of:
  - Internet Early Warning Systems,
  - Trusted Computing and
  - Anti-Spam
- Collecting experience and working out student presentation of new topics from the area of IT security
- Gain of practical experience about the use and the effect of Internet Analysis Systems
- Experiencing the necessity and importance of IT security

Content

- Target group
- Learning goals
- **Content of Course**
- Student presentations
- Lab time
- Text book/Literatures

Trusted Computing
→ Lecture content (1/4)

- ***Introduction***
  - IT security in context
  - Needs for IT security, threats, attacks, damage categories, …

- ***Internet Early Warning Systems***
  - Introduction
  - Structure of the Internet
  - General idea of Early Warning Systems
  - Structure of Internet Early Warning Systems
  - Basis of Early Warning Systems
  - Different approaches of Realisation
  - Internet Analysis System (Idea, Targets, Approach, Results)
  - LogData Analysis Systems (Idea, Targets, Approach, Results)
  - Internet Availability System (Idea, Targets, Approach, Results)

Trusted Computing
→ Lecture contents (2/4)

- ***Trusted Computing***
  - Introduction Trusted Computing
  - Trusted Computing Group
  - Trusted Platform Module (TPM)
  - Trusted Computing
    → Functionalities: Trusted Boot, Sealing, Binding, remote Attestation, …
  - Virtualization
  - Trusted Computing Base (TCB)
  - Security Platform Turaya (Idea, Targets, Approach, Results)
  - Examples

Trusted Computing
→ Lecture contents (3/4)

- ***Trusted Network Connect***
  - Introduction of the TNC Idea
  - TNC architecture
    - TNC entities
    - TNC layers
    - TNC sequences
  - T-NAC (Idea, Targets, Approach, Results)

Trusted Computing
→ Lecture contents (4/4)

- ***Anti Spam Systems***
  - Introduction
  - Definition of spam
  - Damage created by spam
  - Sources of spam
  - Anti spam techniques and technologies
  - Consequences resulting in practice
  - Prevention / Avoidance
  - Distribution IP Reputation Exchange (Idea, Approach, Results)
  - Black List
  - Prospect

Content

- Target group
- Learning goals
- Content of Course
- **Student presentations**
- Lab time
- Text book/Literatures

Student presentation topics

- **Procedure**
  - Students can work in small groups.
  - More information is given in an separate presentation.

- **Possible topics for the student presentations are:**
  - IT early warning systems in companies
  - Botnets and Trojan horses
  - Honey Pots
  - Spam traps
  - The 10 biggest problems in the Internet:
    - Why are they a problem?
    - Detailed description and discussion.
  - ...

Content

- Target group
- Learning goals
- Content of Course
- Student presentations
- **Lab time**
- Text book/Literatures

Trusted Computing
→ Practical training

- Topics of the practical training are:
  - Analysis of the Internet Analysis System in a small group with working out the results

- The practical training takes place in the Cybersecurity Laboratory.

Content

- Target group
- Learning goals
- Content of Course
- Student presentations
- Lab exercises
- **Text book/Literatures**

Trusted Computing
→ Documents

- Lectures are available as PDF
  - Web server: **http://lehre.internet-sicherheit.de**
  - User name: **student2003**
  - Password: **fuzzy25**

Trusted Computing
→ Books / Links

Books

- G.Simmons(Hrsg.): „Contemporary **Crytology** - The Science of Information Integrity“, IEEE Press, New York
- B. Schneier, **“Applied Cryptography“**, **“Secrets&Lies“**, **“Practical Cryptography“**,, John Wiley & Sons
- … and much more in the lectures

Links

- https://www.trustedcomputinggroup.org/
- http://dnsbl.if-is.net/

Fachhochschule Gelsenkirchen

Trusted Computing
→ Structure of the Course

Thank you for your attention!
Questions?

Prof. Dr.
Norbert Pohlmann

Institute for Internet Security - if(is)
University of Applied Sciences Gelsenkirchen
http://www.internet-sicherheit.de

if(is) internet security.