Säkerhet
Data Security

EITF55, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED C/D
Date of Decision: 2023-04-18

General Information

Compulsory for: IDA3, IEA3
Language of instruction: The course will be given in Swedish

Aim

The course wants to give the students a sound knowledge of the security problems that need to be solved in and around the use of computer systems to operate such systems in a networked environment. In such an environment it is important that the correct information is transmitted and is sent to the correct receiver. Encryption, authentication, key management, and digital certificates are examples of notions that will be clarified and exemplified in this course.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- Understand and explain the basic security problems that are addressed by data/computer security
- Understand and explain principles for security solutions for data/computer security.

Competences and skills
For a passing grade the student must

- Isolate and identify security problems that arise with the use of computers and communication between them
- Can give different approaches for solving the above mentioned problems
- Can suggest and explain appropriate measures that are commonly deployed to secure

data when being process, stored or communicated
- Can explain the consequences of practical measures that are employed to secure data and computer systems

Judgement and approach
For a passing grade the student must

be able to clearly explain approach and method for solving home assignments.

Contents

- Security and security analyses
- Reliable operation
- Human errors
- Virus, Trojan horses
- Identification
- Secure operating systems
- Trusted computing
- Access control to systems
- Access control to stored data
- Encryption and cryptography
- Cryptographic checksums, MACs, digital signatures
- Key management
- Network security
- Standard Internet security solutions: SSL, TLS, IPsec
- Mobile network security: GSM, 3G, LTE
- Security for Internet of Things

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Grade 3 requires successful written exam and approved projects and assignments. Grade 4 and 5 can be obtained through the written exam.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts
Code: 0118. **Name:** Written Exam.
Credits: 5. **Grading scale:** TH. **Assessment:** Approved written exam
Code: 0218. **Name:** Projects.
Credits: 2. **Grading scale:** UG. **Assessment:** Approved projects and reports
Code: 0318. **Name:** Home Assignment.
Credits: 0,5. **Grading scale:** UG. **Assessment:** Approved Home Assignment

Admission

Admission requirements:

- The compulsory course items of EDAA10 Computer Programming in Java must be completed.

The number of participants is limited to: No

The course overlaps following course/s: EDA625

Reading list

- Stallings & Brown: Computer Security, Principles and Practice, 4th edition. ISBN: 9781292220611.

Contact and other information

Course coordinator: Christian Gehrmann, christian.gehrmann@eit.lth.se
Course homepage: http://www.eit.lth.se/course/eitf55