

## **CHALMERS UNIVERSITY OF TECHNOLOGY - rev. A**

Department of Computer Science and Engineering

Maskingränd, 4<sup>th</sup> floor, Ph. 031 772 1008 (CSE department's student office)

### **EDA263 (DIT641 for GU) Computer Security for the International Masters Program in Computer Systems and Networks (MPCSN), 7.5 credits - Course period III, 2012/2013**

#### **Aim**

The course gives basic knowledge in the security area, i.e. how to protect your system against intentional intrusions and attacks. The purpose of intrusions can be to change or delete resources (data, programs, hardware, etc), to get unauthorized access to confidential information or unauthorized use of the system's services. The course covers threats and vulnerabilities in the computer systems and networks, as well as rules, methods and mechanisms for protection. Modelling and assessment of security and dependability as well as metrication methods are covered. During a few lectures, a holistic security approach is taken and organizational, business-related, social, human, legal and ethical aspects are treated.

#### **Prerequisites**

The course EDA092 Operating systems or equivalent knowledge is recommended.

#### **Teachers**

Assitant Professo Magnus Almgren, ph. 031 772 1702, email: magnus.almgren<sup>1</sup>

Professor Erland Jonsson, ph. 031 772 1698, email: erland.jonsson<sup>1</sup>

#### **Responsible for laborations**

M.Sc Pierre Kleberger, email: pierre.kleberger<sup>1</sup>

#### **Laboratory supervisors**

M.Sc Valentin Tudor, email: tudor<sup>1</sup>

M.Sc Fatemeh Ayatollahi, email: fatemeh.ayatollahi<sup>1</sup>

#### **Contents**

Part 1: Lectures, according to the plan on page 2.

Part 2: Laborations

There are four laborations in the course. They will start in course week 2 and continue until course week 6. All information on the laborations are found on the course homepage.

#### **Reading**

Text book: Stallings & Brown: Computer Security, Pearson 2012, ISBN: 978-0-273-76449-6.

Offprints (OP): are sold at DC. Downloads and links (DL) from the course homepage.

#### **Course homepage**

The course homepage is <http://www.cse.chalmers.se/edu/course/EDA263/> .

#### **Examination**

Three written examination opportunities will be offered:

Thu 2013-03-12 pm, Wed 2013-08-28 pm and one occasion in January 2014.

Marks 3, 4 and 5 are given for a passed examination (GU: Pass and Pass with distinction).

The whole course is passed when the written examination and the laborations are passed.

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<sup>1</sup> All email addresses are in the Chalmers domain

## Lecture plan (preliminary)

Lectures are given according to the schedule below.

The corresponding course material is listed in a separate document

lecture	contents
L1 - 130121, 13-15, HA1	course introduction, terminology, computer security basics
L2 - 130124, 10-12, HC4	UNIX Security, malicious software and vulnerabilities I
L3 - 130125, 15-17, HC4	authentication and access controls, authorization, passwords
L4 - 130128, 13-15, HA1	malicious software and vulnerabilities II, buffer overflow attacks
L5 - 130131, 10-12, HC4	introduction to cryptology, signatures, PKI, CA
L6 - 130201, 15-17, HC4	malware defences, network security basics, firewalls, deception systems, network attacks, operating systems security basics
L7 - 130207, 10-12, HC4	network attacks and controls, network authentication, Kerberos Denial-of-Service attacks
L8 - 130208, 13-15, HC4	intrusion detection systems, intrusion tolerance
L9 - 130211, 13-15, HA1	security policies and models
L10- 130214, 10-12, HC4	database security, injection attacks, defensive programming
L11- 130218, 13-15, HA1	security and dependability modelling and metrics
L12 - 130221, 10-12, HC4	risk analysis, human and organisational factors, key escrow
L13 - 130225, 13-15, HA1	Common Criteria, spam economics, computer forensics
L14 – 130228, 10-12, HC4	Guest lecture: Security in the Telecom business by Ulf Larson from Ericsson
L15 – 130304, 13-15, HA1	ethics, course summary, examination
L16 – 130307, 10-12, HC4	reserve