

PA 197 Secure Network Design



Overview of the course

Zdeněk Říha & Eva Hladká & Luděk Matyska &
Petr Švenda & Marek Kumpošt



PA 197 Secure Network Design

- New course
 - Being introduced in the school year 2015/2016
- Secure Network Design
 - Methods and technologies that are at the base of secure network design.
- 2/2/2
 - Lecture: 2 hours weekly
 - Seminar: 2 hours weekly (3 seminar groups)
 - Assignments: 4+ hours weekly
 - Project: 16+ hours (cyber game)

Aims of the subject

- To provide information about secure network architectures their implementations and operations
- Foundations on secured deployment of sensor networks
- Hands-on experience
- Potential to use the knowledge in an extensive cyber game

Organization

- Lectures + seminars + assignments + project + exam
- Assignments
 - Assigned regularly (nearly) every week
 - individual work of each student
 - expected workload: 4+ hours/week/participant
 - Network lab available to students
- Project
- Exam
 - Written exam, mostly open questions

Project options

- Czech students will have an option to choose between a practical project or theoretical&practical mix
 - like “IPv6—Penetration test”
- We suggest: real Capture the Flag (12 hours of a cyber game) and report of results— optional for Czech, mandatory for Indian students

Project organization

- groups of several (usually three) students
- project defence / report
- expected workload: 16 hours/project/participant

Grading

- Credits
 - 2+2+2 credits, plus 2 for the final exams
- Points
 - Homework (30) – min 15
 - Project (30) – min 15
 - Written exam (90)
- Grading
 - A \geq 90% of maximum number of points
 - B \geq 80% of maximum number of points
 - C \geq 70% of maximum number of points
 - D \geq 60% of maximum number of points
 - E \geq 50% of maximum number of points
 - F < 50% of maximum number of points

Attendance

- Lectures
 - Attendance not obligatory, but highly recommended
 - Not recorded (small lecture room without video facilities)
- Seminars
 - Attendance obligatory
 - Absences must be excused at the department of study affairs
 - 2 absences are ok
- Assignments and projects
 - Done during students free time (e.g. at the dormitory)
 - Access to network lab and CRoCS lab is possible
 - Some assignments indeed require access to the network lab

Course resources

- Lectures (PDF) available in IS
 - IS = Information System of the Masaryk University
- Assignments (what to do) available in IS
 - Submissions done also via IS
- Additional tutorials/papers/materials from time to time will also be provided in IS
 - To better understand the issues discussed
- Recommended literatures
 - To learn more ...

Pre-enrollment reading

- Web pages of the EU co-funded project ResumeNet, especially the objectives and general deliverables (e.g. D1.1, D2.1b, D3.3) and also their lecture material.

<http://www.resumenet.eu>

- Symantec's Internet security threat report volume 20-2015

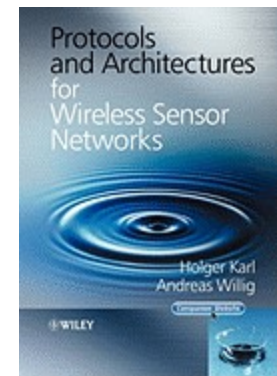
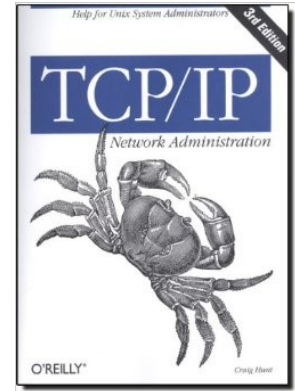
https://www4.symantec.com/mktginfo/whitepaper/ISTR/21347932_GA-internet-security-threat-report-volume-20-2015-social_v2.pdf

- Web pages on RINA

<http://csr.bu.edu/rina/index.html>

Recommended literature

- Craig Hunt. TCP/IP Network Administration. O'Reilly Media. Third Edition. 2002. ISBN-10: 059600297.
- Lee Allen. Advanced Penetration Testing for Highly-Secured Environments: The Ultimate Security Guide. ISBN-10:1849517746.
- Holger Karl. Andreas Willig. Protocols and Architectures for Wireless Sensor Network. Wiley-Interscience. 2007. ISBN-10: 0470519231.



Plagiarism

- Homeworks
 - Must be worked out independently by each student
- Projects
 - Must be worked out by a team of 3 students
 - Every team member must show his/her contribution
- Plagiarism, cut&paste, etc. is not tolerated
 - Plagiarism is use of somebody else words/programs or ideas without proper citation
 - IS helps to recognize plagiarism
 - If plagiarism is detected student is assigned -5 points
 - In more serious cases the Disciplinary committee of the faculty will decide