Copenhagen University College of Engineering
Center for Wireless Technologies and Economy
in Collaboration with Aalborg University

Summer School in Security in IT Systems

Week 1   August 1 – August 5

Monday   Introduction
            - Security architecture
            - Standards
            - Organization aspects

Tuesday   Symmetric Encryption and Message Confidentiality
            - Symmetric principles and algorithms
            - Cipher block modes
            - Key distribution

Wednesday   Public-Key Cryptography and Message Authentication
            - Approaches to message authentication
            - Secure hash functions and HMAC
            - Public-key principles and algorithms
            - Digital signatures and key management

Thursday   Authentication Applications
            - X.509 authentication service
            - Public-key infrastructure
            - Secure mail, S/Mime

Friday   Firewalls
            - Firewall design principles
            - Hardware and software firewalls
            - Trusted systems

Week 2   August 8 – August 12

Monday   IP Security
            - IP security architecture
            - Authentication header
            - Encapsulating security payload
            - Key management

Tuesday   Wireless Security
            - Security in WiFi
            - Security in Bluetooth
            - Security in GSM/UMTS

Wednesday   Written exam
            Web Security
            - Web security considerations

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               - Secure socket layer
               - Transport layer security
               Mini project begins


Thursday   Secure Web with Java
               - Java servlets and JSP
               - Secure server setup
               - Security in ASP.NET
               Project work


Friday     Privacy Aspects
               - Web cookies
               - Leaving traces
               - Spyware
               - Password security
               Project work
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Week 3   August 15 – August 19

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Monday     Malicious Software
               - Viruses and related threats
               - Virus countermeasures
               - Denial of service attacks
               Project work


Tuesday    Project work whole day


Wednesday Project work
               Project hand in at 15:00


Thursday   Project evaluations


Friday     Project evaluations
               Farewell
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Prerequisites: Courses in Network Protocols and in Java Programming (or C++ or C#)

Assessment: Individual written exam counts 50% and project evaluation counts 50% (grade from ECTS scale).

Textbook: Substantial part is based on William Stallings, "Network Security Essentials", 3rd ed., Pearson Prentice Hall, 2007.

Attendance: 80% minimum.

Teachers: Associate professor Svend Mortensen, Associate professor John Kryger Sørensen, Associate professor Henrik Tange, Professor Birger Andersen, and assistants.