

# *The Hebrew University of Jerusalem*

## *Syllabus*

### **COMMUNICATION NETWORKS SECURITY - 67914**

*Last update 06-11-2016*

*HU Credits:* 5

*Degree/Cycle:* 2nd degree (Master)

*Responsible Department:* computer sciences

*Academic year:* 0

*Semester:* 1st Semester

*Teaching Languages:* English

*Campus:* E. Safra

*Course/Module Coordinator:* Dr. Haya Shulman

*Coordinator Email:* [haya.shulman@sit.fraunhofer.de](mailto:haya.shulman@sit.fraunhofer.de)

*Coordinator Office Hours:*

*Teaching Staff:*

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Dr. Haya Shulman

Course/Module description:

We will study basic issues, attacks and defences for network security. The course will cover several basic standard, network protocols and security mechanisms, both non-cryptographic and cryptographic (incl SSL/TLS, IPsec, DNSsec, ...), and review common attack vectors, such as denial of service, and main attack medium which is botnets.

Course/Module aims:

The course aims to provide the students with tools and understanding of the network security vulnerabilities and defences in the Internet.

Learning outcomes - On successful completion of this module, students should be able to:

The expertise provided by the course will enable the students to conduct advanced research in the Internet systems and networks. The students will be able to analyse attacks and identify vulnerabilities in networks.

Attendance requirements(%):

80%

Teaching arrangement and method of instruction: Academic articles and papers, lecture notes, presentations

Course/Module Content:

- A. Systems and protocols (ARP, DHCP, NTP, ..), attacks and defences in LAN
  - a. Degradation of service
  - b. Content injection
  - c. Traffic interception
- B. Systems and protocols in the WAN (routing, naming, network time protocol)
- C. Security mechanisms and deployment challenges/obstacles (incl, secure channel: IPsec, SSI, DNSSEC,

Required Reading:

Will be given during the course

Additional Reading Material:

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*Will be given during the course*

*Course/Module evaluation:*

*End of year written/oral examination 100 %*

*Presentation 0 %*

*Participation in Tutorials 0 %*

*Project work 0 %*

*Assignments 0 %*

*Reports 0 %*

*Research project 0 %*

*Quizzes 0 %*

*Other 0 %*

*Additional information:*