DOCTORAL SCHOOL OF INFORMATICS
COMPLEX EXAM SUBJECT

## IT security

**1.**    **Information security concepts**

**1.1.**    Types of attacks, goals of security,

2.    **Security threats and vulnerabilities**
2.1.    Weak / strong passwords, insecure network connections, malicious code, steganography, cyber crime, cyber terrorism
3.    **Security management**
3.1.    Security policy, risk management, procedure and guidelines, business continuity, disaster recovery
4.    **Security laws and standards**
4.1.    ISO 27001, PCI-DSS, ITIL, COBIT, SSE-CMM
5.    **Network security**
5.1.    Access control, IDS, IPS, Firewalls, DMZ, VPN, virtualization, cloud security, mobile security, digital forensics, vulnerability analysis, penetration testing
6.    **System and application security**
6.1.    Desktop, web, database, OS
7.    **Malware analysis, reverse engineering, Viruses**
8.    **Basic cryptography**
8.1.    Classical cryptography, PKI, Hashes
8.2.    Key management, digital signatures
8.3.    Cipher techniques, biometrics

---

**Bibliography:**

1.  Matt Bishop: Introduction to computer security, Addison-Wesley, 2005.

2.  Bruce Schneier: Applied Cryptography, John Wiley, 1996.

3.  Menezes, Oorschot, Vanstone: Handbook of applied cryptography, CRC press, 1996.