Rzeszów University of Technology

The Faculty of:	Faculty of Electrical Engineering and Informatics
Field of study:	Computer Engineering (EF)
Speciality:	FDA
Study degree (BSc, MSc):	BSc, first circle full time studies

COURSE UNIT DESCRIPTION

Course title:	Computer Systems Security
Lecturer responsible for course: Marcin Bednarek, PhD **Contacts: phone:** +48178651543 **e-mail:** bednarek@prz.rzeszow.pl	
Department : Department of Computer and Control Engineering	

Semester	**Weekly load**	**Type of classes**				**Number of ECTS credits**
		L Lectures	**C Theoretical Classes**	**Lb Laboratory**	**P Project**	
6	3	25			20	3

Course description
Lecture: Information security. Security policy. Security threats. Security attacks. Security services, security mechanisms. Certification of systems. Basic elements of cryptography. Kinds of ciphers. Symmetric key cryptography: stream ciphers and block ciphers. Symmetric and asymmetric cipher algorithms. Public key cryptography. PGP. Authentication methods. Digital signature. Malware. Digital watermarking and steganography. Compromising emanations. Firewalls. Sniffing and scanning. Backup. Data security in the communication systems (among others computer networks, wireless computer networks, satellite transmission). VPN (tunneling). Transmission security in the industrial networks and distributed control systems.
Classes:
Laboratory: Analysis and/or planning the security of the computer systems and the computer networks. Implementation of security services in the computer systems. Computer networks security. Virtual Private Networks. Firewalls. Scanning and sniffing. Trustee rights (eDirectory, Active Directory). Data storage security.
Project: .

Objectives of the course

The goal of the course is to learn about security of computer systems (analysis and planning the security of computer systems, implementing security services).
Examination method
Written test, written solution of design problems (reports on made exercises), oral discussion.

Bibliography
1. Stamp M.: Information Security. Principles and Practice. Willey-Interscience, Hoboken, 2006. 2. Stallings W.: Ochrona danych w sieci i intersieci. W teorii i praktyce. WNT, Warszawa 1997 3. Stokłosa J., Bilski T., Pankowski T.: Bezpieczeństwo danych w systemach informatycznych, PWN, Warszawa – Poznań 2001 4. Liderman K.: Bezpieczeństwo Teleinformatyczne, Instytut Automatyki i Robotyki WAT, Warszawa 2001 5. Anderson J.: Security Engineering. A Guide to Building Dependable Distributed Systems, Wiley Publishing Inc., Indianapolis 2008 6. Maiwald E. Bezpieczeństwo w sieci: kurs podstawowy, EDITION 2000, Kraków 2001 7. Sutton R. J.: Bezpieczeństwo telekomunikacji: praktyka i zarządzanie, WKiŁ, Warszawa 2004 8. Schneier B.: Kryptografia dla praktyków, WNT, Warszawa 2002 9. Dennig D.E.: Wojna informacyjna i bezpieczeństwo informacji, WNT, Warszawa 2002 10. Put D.: Szkoła Hakerów – podręcznik, Wydawnictwo CHS, Kwidzyn 2006 11. Smith B., Komar B, Microsoft Security Team: Windows Security, APN Promise, Warszawa 2003

Lecturer signature	
Head of Department signature	
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