Current status report
Course: Advanced Network & Cloud Security (ENGENSEC)

Module 1 - Advanced Cryptography and Cryptanalyses.

#	Lecture	Hours	Developer	Comments
1	Using cryptography in the process of building advanced secured networks	2	OS	Developing content, translating to English/done 30%
2	Asymmetric cryptography, key management protocols, investigation of hash functions	4	OS	Developing content, translating to English/done 40%
3	Cryptanalysis in protected protocols	4	OS	Developing content, translating to English/done 20%
#	Labs	Hours	Developer	Comments
1	Cryptanalysis of several algorithms (RSA, AES) based on CrypTool	4	OS	Developing
2	Cryptanalytical measurement methods (entropy, n-grams, autocorrelation, hash functions etc.) Related auxiliary methods (primality tests, factorization, base64 encoding, etc.); visualization graphs, hash functions: MD5, SHA-1, SHA-2 based on CrypTool	4	OS	Developing

Module 2 - Access Control Security

#	Lecture	Hours	Developer	Comments
1	Advanced access control protection mechanisms	2	AK	Done
2	Investigation of protocols such as AAA, EAP, 802.1X, RADIUS, 802.1ae, SXP, SGT, TrustSec, Profiling и Diameter	4	AK	Modifying content/80% done
#	Labs	Hours	Developer	Comments
1	Man-in-the middle attacks, ARP spoofing, IP spoofing attacks	4	AK	In the process of adaptation to ReSeLa
2	Protection against attacks on devices (DOS attacks)	2	AK	In the process of adaptation to ReSeLa

Module 3 – IPS and Firewall Security

#	Lecture	Hours	Developer	Comments
1	Stateful firewalls, firewall forensic.	4	IU	In the process of correction/done

				80%
2	Intrusion detection/prevention systems (IDS, IPS) – SourceFire, Snort.	4	IU	In the process of correction/done 80%

#	Labs	Hours	Developer	Comments
1	Attacks of firewalls (TCP-flooding)	2	IU	In the process of adaptation to ReSeLa
2	Session interception attack	4	IU	In the process of adaptation to ReSeLa
3	IPS signatures attacks	4	IU	In the process of adaptation to ReSeLa

Module 4 – VPN and SDN security

#	Lecture	Hours	Developer	Comments
1	Layer 3 VPN (IPSec, MPLS VPN, GRE, DMVPN, FlexVPN, GET VPN)	4	IU	In the process of correction/done 80%
2	Layer 4 VPN (SSL/TLS)	2	IU	In the process of correction/done 80%
3	SDN Security	4	IU	Developing/new topic

#	Labs	Hours	Developer	Comments
1	IPSEC VPN protection	4	IU	In the process of adaptation to ReSeLa
1	Open VPN (SSL/TLS attack)	2	IU	In the process of adaptation to ReSeLa
2	SDN attacks	4	IU	Developing – new topic

Module 5 - Cloud Security

#	Lecture	Hours	Developer	Comments
1	Security and Privacy in Cloud Computing: State of the Art	2	IK	In the process of correction/done 80%
2	Virtualization: Issues, Security Threats, and Solutions	2	IK	In the process of correction/done 80%
3	Cloud Confidentiality: Threats and Defense	2	IK	In the process of correction/done 80%
4	Cloud Integrity: Threats and Defense	2	IK	In the process of correction/done

#		Hours		80%
5	Cloud Availability: Threats and Defense	2	IK	In the process of correction/done 80%
6	Data Accountability in Cloud Systems	2	IK	In the process of correction/done 80%
7	Cloud Privacy	2	IK	In the process of correction/done 80%
#	Labs	Hours	Developer	Comments
1	Virtualization Security	2	IK	Done
2	Confidentiality and Integrity: Attacks and Defense in Cloud Systems	4	IK	Done
3	Availability: Attacks and Defense in Cloud Systems	4	IK	Done

Developers

OS – Oleksa Skorokhoda

IK – Igor Kotenko

IU – Igor Ushakov

AK – Andrey Krasov

Overlapping areas

After the discussion in working groups in April there were excluded some potential overlapping areas of the course.
There was a discussion according to IPS/IDS, SSL/TLS sections of the course because of potential overlapping between «Web Security» course. So the decision was that IPS/IDS and SSL/TLS sections should be covered in «Adv.Network&Cloud Security».

Also there was a potential overlapping with «Wireless & Mobile Security» course in sections of EAP, Radius, AAA. The conclusion was made that in «Wireless & Mobile Security» course the topics according to AAA discussed in the aspects of wireless.