



**Federal State Budget-Financed Educational Institution of
Higher Education The Bonch-Bruевич Saint Petersburg
State University of Telecommunications**

**10.04.01 Information Security
Computer Systems Security
(Educating the Next Generation Experts in Cyber Security)**

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**Ph.D., Assoc. Prof.
Igor Ushakov**

About the program

- **Field of study**

10.04.01 Information Security

- **Degree level**

Master Program 2 years

- **Title of the academic program**

Computer Systems Security (Education the Next Generation Experts in Cyber Security)









International Accreditation

✓ **SPbSUT** received **certificates of international professional and public accreditation** of educational programs in the areas of training 10.03.01 Information security, 10.04.01 Information security, 10.05.02 Information security of telecommunication systems, 10.06.01 Information security, 11.03.02, 10.04.02, which produces the department - protected communication systems for a period of **6 years** until July 1, 2027.

✓ The areas of training participating in accreditation were awarded the **EXCELLENT QUALITY badge**, which testifies to the high quality of educational programs accredited in accordance with European standards to guarantee the quality of ESG education



Program Structure

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Certification of Information Security Tools  Secure dep. Ph.D. Andrey Minskyev Pass-fail exam			Information Security Technologies Secure dep. Ph.D. Igor Ushakov Exam				Information Security Management  Secure dep. Ph.D. Dmitry Sakharov Exam				Secure Information Systems  Secure dep. Roman Petriv Pass-fail exam			Big data Information Security Technologies  Secure dep. Ph.D. Andrey Chechulin Exam				Scientific-research work Pass-fail exam											
2	Advanced Network & Cloud Security Secure dep. Ph.D. Igor Ushakov Exam					Pentest & Ethical Hacking  Secure dep. Roman Petriv Exam						Secure Software Development Secure dep. Ph.D. Andrey Krasov Exam						Scientific-research work Pass-fail exam		Practice work Pass-fail exam										
3	Wireless & Mobile Security Secure dep. Ph.D. Maxim Kovtun Exam					Malware Secure dep. Ph.D. Andrey Krasov Exam						Digital Forensic  Secure dep. Ph.D. Elena Fedorchenko Exam						Scientific-research work Pass-fail exam												
4	Internship Pass-fail exam								Undergraduate practice Pass-fail exam										Thesis Defense											

Joint subjects



Tempus



Advanced Network & Cloud Security

The purpose of the course is to provide knowledge in modern methods of protecting networks and cloud systems. The students will obtain practical skills in deep packet inspection systems, firewalls, access control methods of protection, software- defined networks, cloud security principles



Wireless & Mobile Security

The purpose of the course is to provide knowledge in security architecture of wireless communication systems, information threats, vulnerabilities and protection abilities in wireless networks. The students will obtain practical skills in penetration testing of wireless networks and using various protection methods.



Secure Software Development

The purpose of the course is to teach students about the process of developing software which is secure, reliable and easy to maintain. The whole System/Software Development Life Cycle process will be described in detail with special attention given to security issues of software development process. Common programming errors and typical vulnerabilities will be discussed as well as testing techniques

Joint subjects



Tempus



Malware

The purpose of the course is to provide knowledge in malware analysis for Windows, Android and iOS platforms. The students will obtain practical skills in reverse engineering as well, as in static and dynamic analysis of malicious applications designed for both: ARM and x86 architectures.



Pentest & Ethical Hacking

Ethical hacking or penetration testing is a process of attempting to penetrate a computer system or network on behalf of its owners for the purpose of finding security vulnerabilities that a malicious hacker could potentially exploit.



Digital forensic

The purpose of the course is to provide knowledge in digital forensic. The students will obtain practical skills in general evidence collection process and forensic tools usage. Also, during this course the students will apply and enhance their knowledge of the operation systems, network interactions, hardware, etc.



The department of Secured Communications Systems is recognized The Best Education Center in Russia in area of Information Security of the year on whole Russia competition Infoforum 2016/2019/2023



- ✓ Igor Ushakov – teacher of the 2017 year in Information Security area
- ✓ Andrey Krasov – teacher of the 2019 year in Information Security area
- ✓ Lidia Vitkova – specialist of the 2017 year in Information Security area
- ✓ Artem Gelfand – master student of the 2017 year in Information Security area
- ✓ National Award "Safe Information Environment 2020") – Igor Ushakov, Stanislav Shterenberg



SPbSUT - BTH Exchange

- **Exchange period was started on September 2015**

Igor Ushakov visited BTH as guest lecturer with the course «Network Security», 2021 – guest lecturer – course CCNA Security

- **Many master students visited BTH during spring exchange period.**

One of them was a PhD student in Halmstad university, Sweden.

- **We have signed an agreement in 2019 about students exchange between SPbSUT and BTH (Sweden) according to joint master program.**



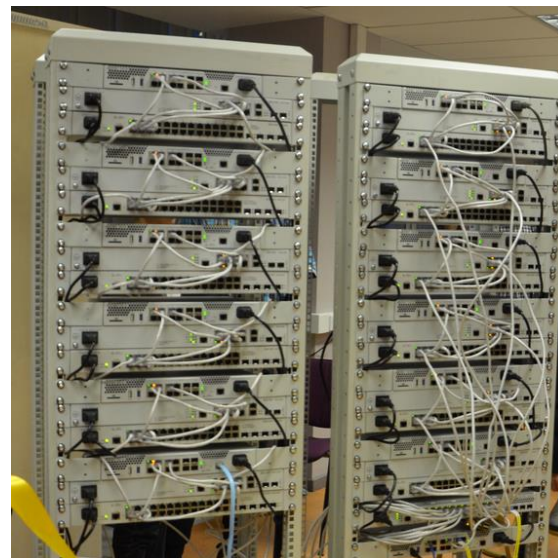
International Summer School ENGENSEC 2016



OpenStack Remote Security Laboratory (ReSeLa) and Eltex Network Academy



OpenStack Remote Security Laboratory (ReSeLa) includes server cloud equipment (3 high end Fujitsu servers and 15 computers)



Double degree diploma defenses



Dmitry Pelevin, a student of the ICTB-97m group, defended his dissertation on the topic: "Research of methods and algorithms of insider detection in a computer network using machine learning technologies".

Scientific advisers - Ph.D., Associate Professor of the Department of SCS Igor Ushakov (SPbSUT, Russia), Ph.D., Dragos Ilie (BTH, Sweden).



Kristina Valieva, a student of the ICTB-97m group, defended her dissertation on the topic: "An approach to detecting the spread of false information on the Internet using data science algorithms".

Scientific adviser Ph.D., associate professor D.V. Sakharov (SPbSUT, Russia), Ph.D. Hakan Grahn (BTH, Sweden).
Gleb Gurbatov, an SPbSUT student defended his thesis in BTH and SPbSUT in 2022.




Joel Lidmark and Andreas Korsbakke, students of the ICTB-97m group, defended their dissertation on the topic: "Forecasting alarms using machine learning Predicting tall oil production at Sodra cell".

Scientific advisers - Ph.D., Associate Professor Andrei Krasov, Ph.D., Associate Professor Andrei Chechulin (SPbSUT, Russia), Martin Boldt, Ph.D. (BTH, Sweden)



Students Feedback



Studying process at SPbSUT differs from BTH. SPbSUT professors pay much more attention to laboratory work, constantly monitoring your activity. This allows you to plunge deeper into the subject and give you the opportunity to distribute your free time effectively.



Andreas Korsbakke



We are very pleased to have the opportunity to study in Russia, to have modern courses that were developed during the ENGENSEC project: Securing Cloud Computing and Telecommunications, Penetration Testing and Ethical Hacking, Secure Application Development. This is a unique opportunity to combine studies in modern programs with visits to the museums of wonderful St. Petersburg.



Joel Lidmark

The content of the program of the enrollment tests (example)

- **The Main Components of Information Security. Threats to Information Security**
- **Authentication and Authorization Mechanisms in TCP/IP Networks**
- **Computationally Stable Cryptosystems (Simple and Complex Algorithms)²**
- **Stream Ciphers (Construction Methods, General Characteristics)²**
- **Properties of Stream Ciphers**
- **Principles of Constructing Block Ciphers**
- **Principles of Construction of Asymmetric Cryptosystems**
- **Audit in Secure Information System**
- **Firewalls and Intrusion Prevention Systems**
- **The Main Protocols of Network Interaction**



Contacts

Thank you for your attention!

Questions?

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systems*

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