INFORMATION SYSTEMS AND CYBER SECURITY

Programme type	Bachelor's Studies (University)
Field of study	Information Sciences
Study area	Informatics Engineering
Degree	BSc of Information Sciences
Duration	3.5 years (7 semesters)
Workload	210 ECTS
Language of instruction	English
Location	Kaunas, Lithuania
Starting date	1st of September
Tuition fee EU students	3000* EUR/per year (*to be confirmed)
Tuition fee Non-EU students	3000 EUR/ per year

PROGRAMME DESCRIPTION

- *The objective*

The study programme Information Systems and Cyber Security aims at the preparation of professionals in Information Systems and Cyber Security who will have the fundamental and applied knowledge in Informatics Engineering and develop skills required for a secure analysis, design, structuring and maintenance of information systems.

- *Career opportunities*

Graduates of this study programme will be able to work as experts, consultants and information systems security professionals in government organizations and business enterprises of various size; information systems analysts or architects, programmers, testers, database administrators, project managers in the field of Information Systems; information security analysts; security management professionals or managers and IT security auditors in

organizations; will be able to develop their own business initiatives, provide consulting services or carry out a qualitative analysis of information systems' design and management.

- *Access to further studies*

The graduates may continue their studies in the Master level programmes.

KEY LEARNING OUTCOMES

The graduate of this study programme will develop skills in the analysis and formalization of information flows in a business enterprise; forecast and technologically justify the directions of the implementation of information technologies and work out an adequate instrumentarium; design, implement, structure, maintain and professionally assess the secure information systems and offer assistance and teaching to the consumers of information technologies; be able to understand and analyse the subject matter of information systems, the processes of their structuring, design, redesign (reengineering and reverse engineering) and realization; to apply adequate methods and means and effectively exploit technical equipment and software.

The graduate will be able to identify the gaps of incorrect programming, access to the files of cyberattacks DoS and DDoS, know the Burp Suite, understand the security of WEB components – forms, session management, cookies, configuration of authentication; will know the security context of a particular operational system (OS), recognize the cases of phishing and understand the subtleties of session management and replay attacks.

He/she will be able to analyse the gaps in PHP, Java applications and ensure security in internal hard servers; to perform manual and half-automatic systems and software testing by identifying security gaps and security vulnerabilities; to employ the innovative methods and instrumentarium for the proactive gap identification, including reverse engineering; to analyse the IT problems, offer and apply secure practical solutions with respect to the IT cyber aspect.

The graduate will develop individual and team work skills in organizing the IT processes and act as their manager; be able to design and implement secure computing webs; know the legal regulations of cyber security and be able to apply the methods of ethical hacking in practice; to effectively communicate, be polite, earnest and fair.

He/she will learn how to organize work with the feeling of strong responsibility, individually and in a team; be able to maintain and develop the professional competence in the fields of Information Systems and Cyber Security through lifelong learning; be ready to efficiently carry out professional activities in an international context; be able to follow the social, legal and ethical standards, when employing the fundamental theoretical knowledge in Informatics Engineering, and in practical solutions; to understand computer architecture; be able to employ programming languages, technologies of providing information on the Internet, to design the information systems architecture and data bases, create information systems both with the use of traditional and modern mobile technologies.

COURSE INFORMATION

The programme has the following structure:

Course Type	1st Semester	2nd Semester	3rd Semester	4th Semester
Compulsory Courses	Algorithm Theory and Data Structures (5 ECTS)	Discrete Mathematics in Computer Science (5 ECTS)	Basics of Artificial Intelligence (5 ECTS)	E-Transactions and Their Security (5 ECTS)
	Higher Mathematics (5 ECTS)	Information Systems and Databases (5 ECTS)	WWW Development Technologies (5 ECTS)	Methods of Ethical Hackings (5 ECTS)

	Legal Regulations for Cyber Security (5 ECTS)	Fundamentals of Information System Security (5 ECTS)	Creation of Information Systems on the Basis of Team Work (5 ECTS)	Graphical Business Process Modelling (5 ECTS)
	Computer Architecture (5 ECTS)	Digital Forensics and Methods of Their Analysis (5 ECTS)	Mobile Applications Development Techniques (5 ECTS)	Information Security and Risk Management (5 ECTS)
	Introduction to Programming (5 ECTS)	Operational Systems and Their Security (5 ECTS)		Computer Networks and Their Security (5 ECTS)
	Analysis and Specification of IS Requirements (5 ECTS)	Programming Languages and Object Oriented Programming (5 ECTS)		
Elective Courses			Geographical Information Systems (5 ECTS)	Agile Development with Ruby (5 ECTS)
			Computer Graphics (5 ECTS)	Python Programming (5 ECTS)

Course Type	5th Semester	6th Semester	7th Semester
Compulsory Courses	Data Security and Cryptography (5 ECTS)	Data Mining Technologies (5 ECTS)	Bachelor Final Thesis (Study Field: Informatics Engineering) (15 ECTS)
	IT Processes According to ITIL Methodology (5 ECTS)	Information Systems Testing and Quality Assurance (5 ECTS)	Training Practice (15 ECTS)
	Design of Secure Computer Infrastructures (5 ECTS)	Course Work (5 ECTS)	
	Systems Theory (5 ECTS)	Forensic Analysis of Digital Content and Analysis of Malware (5 ECTS)	
	Virtual Systems and Their Security (5 ECTS)	Statistics (5 ECTS)	

The structure of the programme demonstrates a specific applied direction: it develops competences in cyber concepts of information systems engineering in order to understand the possible spheres of their application.

GRADUATION REQUIREMENTS

The undergraduate studies are completed with the positive assessment of the Bachelor‘s Thesis during its public defence.

ADMISSION REQUIREMENTS AND SELECTION CRITERIA

- Matura (high school leaving) certificate;
- English language proficiency — the level not lower than B2 (following the Common European Framework of Reference for Languages (CEFR).

EXAMINATION AND ASSESSMENT REGULATIONS

Every course unit is concluded with either a written or written-oral examination or pass/fail evaluation. Student's knowledge and general performance during the examination are assessed by using a grading scale from 1 (very poor) to 10 (excellent).

Academic contact	Admission contact
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