UNIVERSITY
OF WARMIA AND MAZURY
IN OLSZTYN

Faculty of Mathematics and Computer Science

Course title: DATA SECURITY

ECTS credit allocation (and other scores): 4,5

Semester: autumn

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Natural sciences

Language: English

Number of hours per semester: 15 lectures + 30 classes = 45 hours

Course coordinator/ Department and e-mail: Erasmus coordinator Anna Szczepkowska/ WMiI, anna.szczepkowska@matman.uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES:

Discussion of the legal aspects of information protection. Papers related to safety and securing information and communication. Discussion of the principles of security policy and creating specific solutions in certain situations. The use of a virtual machine (eg. Fedora 24 Server) to provide practical ways of securing data (authentication, authorization, audit, etc.). Protecting data on mobile devices. Practical use of encryption to protect information. Internet of Things - security.

LECTURES:

International and domestic legal basis for data protection. Data processing and transmission using the infrastructure. Types of hazards and their scale. Security policy and its implementation. Hardware means of securing information and communication. Cryptology. Symmetric encryption and asymmetric. Hash functions. Applications of cryptology. Electronic signature. Public Key Infrastructure. Certification centers. Secure computer networks. Protecting data on mobile devices. Security database. Steganography. Internet of Things - security.

Learning purpose:
To acquaint students with the threats to a computer system that occur during processing and storing information, as well as with the issue of its security.

On completion of the study programme the graduate will gain:

Knowledge:

Versed in the current state of information systems, their resilience to threats and the latest trends, threats and mechanisms to minimize their effects.

Skills:

Can communicate using different techniques on the analysis of the possible risks and techniques to minimize their effects. It has the ability to self-learning risk analysis and measures to counteract their effects.

Social Competencies:

Can properly prioritize in order to ensure a proper level of security in the data processing.

Basic literature:

1) S. Loyd, C. Adams, PKI. Podstawy i zasady działania, wyd. PWN, 2007 ; 2) Merike Kaeo, Tworzenie bezpiecznych sieci komputerowych, wyd. MIKOM, 2000 ; 3) B. Nowakowski, A. Jędruszczak, A. Gałach, Ochrona danych osobowych, informacji niejawnych i systemów teleinformatycznych w sektorze publicznym, wyd. C. H. Beck, 2013 ; 4) M. Stawowski, Ochrona informacji w sieciach komputerowych, wyd. ArsKom, 1998 ; 5) Kevin Kenan, Kryptografia w bazach danych, wyd. MIKOM, 2007

Supplementary literature:

1) Krzysztof Liderman, Analiza ryzyka i ochrona informacji w systemach komputerowych, wyd. Wydawnictwo Naukowe PWN, 2009 ; 2) Grzegorz Leśniewski, Kamila Koszewicz, Andrzej Boboli, Mateusz Borkiewicz, Ochrona danych osobowych w dziale IT, wyd. PRESSCOM Marka: Biblioteka IT Professional, 2017 , s. 244

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 1,60 ECTS points,

Student's independent work: 2,90 ECTS points,