1.	Field of study	Mathematics
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2024/2025 (winter term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	General information about the module	
Module name		Elements of Cryptography
Module code		W4-MT-S2-23-WKry
Number of the ECTS credits		3
Language of instruction		Polish
Purpose and description of the content of education		Celem przedmiotu jest przedstawienie podstaw kryptografii oraz głównych problemów dotyczących zagadnień kryptograficznych wraz z algorytmami stosowanymi w rozwiązaniach. W szczególności omówione zostaną: podstawowe pojęcia kryptografii i kryptoanalizy, podstawy teoretyczne kryptografii, teoria informacji, teoria złożoności obliczeniowej, teoria liczb, algorytmy klasyczne, algorytmy symetryczne, algorytmy asymetryczne, zadania autoryzacji, weryfikacji, czy generowania podpisów cyfrowych, funkcje skrótu.
List of modules that must be completed before starting this module (if necessary)		not applicable

8.	Learning outcomes of the module			

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
EKry_01	Student zna podstawowe grupy systemów kryptograficznych.	KN_NI_W10 K_W05	5 2
EKry_02	Student potrafi szyfrować i deszyfrować w określonym systemie kryptograficznym.	K_K02 KN_NI_W10	1 1
EKry_03	Student stosuje podstawowe zasady zabezpieczenia danych.	KN_NI_W10	3

9.	Methods of conducting classes	

Code	Category	Name (description)
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b08	Problem-solving methods	Activating method – peer learning *learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning*

		situation where students with a similar level of experience learn from one another
b09	Problem-solving methods	**Activating method – flipped classroom** *anticipatory learning; work in class is based on previously studied material indicated by the person teaching the course; preparation outside the classroom serves the purpose of getting familiar with the issues whose knowledge is necessary for participating in the in-class discussion and the training in the related practical skills; the activity is based on the work of students under the guidance of the person teaching the course*
c07	Demonstration methods	**Screen presentation** *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	**Working with another teaching tool** *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*

10. Forms of teaching

Code	Name	Number of hours	Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
EKry_fs_01	lecture	15	course work	EKry_01, EKry_02	b02, c07
EKry_fs_02	discussion classes	30	course work	EKry_01, EKry_02, EKry_03	b08, b09, d03

11. The student's work, apart from participation in classes, includes in particular:

Code	Category	Name (description)	Is it part of the BUNA?
a02	Preparation for classes	**Literature reading / analysis of source materials** *reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class*	No
a03	Preparation for classes	**Developing practical skills** *activities involving the repetition, refinement and consolidation of practical skills, including those developed during previous classes or new skills necessary for the implementation of subsequent elements of the curriculum (as preparation for class participation)*	No
c01	Preparation for verification of learning outcomes	**Determining the stages of task implementation contributing to the verification of learning outcomes** *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
c02	Preparation for verification of learning outcomes	**Studying the literature used in and the materials produced in class** *exploring the studied content, inquiring, considering, assimilating, interpreting it, or organizing knowledge obtained from the literature, documentation, instructions, scenarios, etc., used in class as well as from the notes or other materials/artifacts made in class*	No
d01	Consulting the results of the verification of learning outcomes	**Analysis of the corrective feedback provided by the academic teacher on the results of the verification of learning outcomes** *reading through the academic teacher's comments, assessments and opinions on the implementation of the task aimed at checking the level of the achieved learning outcomes*	Yes

Information on the details of the module implementation in a given academic year can be found in the syllabus available in the USOS system: https://usosweb.us.edu.pl.