Poznan University of Technology
Faculty of Electrical Engineering

European **C**redit **T**ransfer **S**ystem

STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Foundations of Data security**		Code **1010331451010334967**	
Field of study **Computer Science**	Profile of study (general academic, practical) **(brak)**	Year /Semester **3 / 5**	
Elective path/specialty **-**	Subject offered in: **polish**	Course (compulsory, elective) **obligatory**	
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**		

No. of hours					No. of credits **6**
Lecture: **2**	Classes: **-**	Laboratory: **2**	Project/seminars: **-**		

Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**
Education areas and fields of science and art **technical sciences**	ECTS distribution (number and %**)** **6 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Student has an ordered knowledge of basic algorithms and their analysis, design techniques, algorithms abstract data structures and their implementation, computationally difficult problems.
2	**Skills**	Student can obtain information from literature, databases, and other sources; can integrate the information obtained, their interpretation, and also draw conclusions and formulate and justify opinions.
3	**Social competencies**	Student can construct algorithms using basic algorithmic techniques and analyse their complexity.

Assumptions and objectives of the course:

Presentation of theoretical and practical problems dealing with data security.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Student has organized knowledge with theoretical foundations of data protection and IT system security. - [[K_W13]]

Skills:

1. Student is able to apply the appropriate methods of data protection and ensure the security of the IT system. - [[K_U17]]

Social competencies:

1. Student is aware of the importance of behavior in a professional manner, compliance with the rules of professional ethics and respect for the diversity of ideas and cultures. - [[K_K03]]

Assessment methods of study outcomes

Based on lecture and laboratory participation.

Course description

Threats to the data security. Methods of data protection: UPSs, system access security, logs, RAIDs, antivirus protection, steganography; cryptographic methods of data protection: ciphers, cryptographic techniques, data integrity, authentication, non-repudiation, cryptographic key management. Firewalls. Virtual Private Networks. Intrusion Detection Systems. Management of IT security.

Basic bibliography:
1. Introduction to Cryptography, J.A. Buchmann, Springer-verlag, New York, 2004

Additional bibliography:
1. Cryptography and Network Security, W. Stallings, Prentice Hall, 2011.
2. Firewall and Internet Security, W.R. Cheswick, S.M. Bellovin, Addison-Wesley, Reading, MA, 1994.

Result of average student's workload	
Activity	**Time (working hours)**
1. Lecture	30
2. Classes	30
3. Laboratory	30
4. Preparation of laboratory reports	15
5. Preparation to tests	15
6. Preparation to the examination	20
7. Participation in consultations and examination	10

Student's workload		
Source of workload	**hours**	**ECTS**
Total workload	150	6
Contact hours	70	3
Practical activities	70	3