# STUDY MODULE DESCRIPTION FORM

| Name of the module/subject | | Code |
|---|---|---|
| **Data security** | | **1010331551010334967** |
| Field of study | Profile of study (general academic, practical) | Year /Semester |
| **Information Engineering** | **(brak)** | **3 / 5** |
| Elective path/specialty | Subject offered in: | Course (compulsory, elective) |
| **-** | **Polish** | **obligatory** |
| Cycle of study: | Form of study (full-time,part-time) | |
| **First-cycle studies** | **full-time** | |
| No. of hours | | No. of credits |
| Lecture: **30** Classes: **-** Laboratory: **30** Project/seminars: **-** | | **6** |
| Status of the course in the study program (Basic, major, other) | (university-wide, from another field) | |
| **(brak)** | **(brak)** | |
| Education areas and fields of science and art | | ECTS distribution (number and %) |

## 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. Wprowadzenie do kryptografii (Introduction to Cryptography), Buchmann J. A., Wydawnictwo Naukowe PWN (Springer), Warszawa (New York), 2006 (2004)
2. Ochrona danych i zabezpieczenia w systemach teleinformatycznych, Stokłosa J. (red.), Wydawnictwo Politechniki Poznańskiej, Poznań, 2005
3. Bezpieczeństwo danych w systemach informatycznych, Stokłosa J., Bilski T., Pankowski T., Wydawnictwo Naukowe PWN, Warszawa-Poznań, 2001

**Additional bibliography:**

1. Kryptografia (Cryptography. Theory and Practice), Stinson D.R., WNT (CRC Press), Warszawa (Boca Raton), 2005 (1995)
2. Kryptografia w praktyce, Ferguson N., Schneier B., Helion, Gliwice, 2004
3. Firewalle i bezpieczeństwo w sieci, Chestwick W. R. , Bellovin S.M. , Rubin A.D., Helion, Gliwice, 2003

**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 |