GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Information Security (E019400)

Course size *(nominal values; actual values may depend on programme)*

Credits 6.0 **Study time 180 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 2)	Dutch	Gent	
B (semester 2)	English	Gent	practical lecture seminar

Lecturers in academic year 2024-2025

Laermans, Eric	TWO5	lecturer-in-charge
Deschrijver, Dirk	TWO5	co-lecturer

Offered in the following programmes in 2024-2025	**crdts**	**offering**
Bachelor of Science in Computer Science	6	B
Master of Science in Teaching in Science and Technology(main subject Computer Science)	6	B
Bridging Programme Master of Science in Bioinformatics(main subject Engineering)	6	B
Bridging Programme Master of Science in Computer Science Engineering	6	B
Master of Science in Bioinformatics(main subject Engineering)	6	B
Master of Science in Computer Science Engineering	6	A
Master of Science in Computer Science Engineering	6	B

Teaching languages

English, Dutch

Keywords

security, encryption

Position of the course

Teaching basic concepts about information security (mathematical base, applications and legal aspects)
Teaching to apply security techniques

Contents

- Introduction: security aspects and objectives, possible attacks
- Security techniques: mathematical basis for encryption, cryptographic algorithms and protocols
- Applications: network built-in security, private key/certificate storage, intrusion protection, biometric systems, security project
- Security Standards: standards
- Legal Aspects: computer crime, privacy and protection of personal data, e-documents

Initial competences

Discrete mathematics, communication networks

Final competences

1 Understanding security services (confidentiality, authentication, etc.).
2 Understanding the operation of security mechanisms (encryption, Firewall, biometry, etc.).
3 Estimating the necessary resources to crack cryptographic security mechanisms.
4 Using security mechanisms to achieve security functions.
5 Recognising the complexity of achieving good information security.
6 Recognising the social and legal aspects of information security.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Group work, Seminar, Lecture, Practical

Study material

Type: Handbook

Name: William Stallings, "Cryptography and Network Security: Principles and Practice" (eighth edition)
Indicative price: € 80
Optional: yes
Language : English
Author : William Stallings
ISBN : 978-1-29243-748-4
Number of Pages : 832
Oldest Usable Edition : 5th edition
Additional information: Members of VTK can buy the course at a discount (sale via VTK-cursusdienst). Purchase is not mandatory.

Type: Slides

Name: -
Indicative price: Free or paid by faculty
Optional: no
Language : English
Available on Ufora : Yes
Additional information: Available free of charge in electronic form

References

- Tel, Gerard, Cryptografie : beveiliging van de digitale maatschappij., Amsterdam : Addison-Wesley, 2002. ISBN: 9043005002
- Bishop, Matt, Computer security: art and science, Boston (Mass.) : Addison-Wesley, 2003. ISBN: 0201440997
- Menezes, Alfred J. and van Oorschot, Paul C. and Vanstone, Scott A., Handbook of applied cryptography, Boca Raton (Fla.) : CRC, 2001. ISBN: 0849385237 (pdf available online for free)

Course content-related study coaching

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment open-book

Examination methods in case of periodic assessment during the second examination period

Oral assessment open-book

Examination methods in case of permanent assessment

Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Evaluation during examination period: oral open-book exam.
Permanent evaluation (which has a 25% weight in the total examination mark): graded project reports + presentation of proof-of-concept software; second chance: possible in adapted form; frequency: 1 assignment (in groups of approximately 6 students) with deadline at the end of the course period.

Calculation of the examination mark

The project evaluation (report + part of oral exam about the project) amounts to 25% of the final examination mark.
A passing condition for this course is that a student must achieve at least an 8/20 mark both for

the exam and for the permanent evaluation. If this condition isn't satisfied the highest mark a student can obtain for this course is 9/20.