Communication Networks (E008620)

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 2023-2024

A (semester 1)	Dutch	Gent	lecture
			practical

Lecturers in academic year 2023-2024

Tavernier, Wouter	TWO5	lecturer-in-charge

Offered in the following programmes in 2023-2024	crdts	offering
Bachelor of Science in Engineering(main subject Computer Science Engineering)	6	A
Bachelor of Science in Engineering(main subject Electrical Engineering)	6	A
Bachelor of Science in Computer Science	6	A
Master of Science in Teaching in Science and Technology(main subject Mathematics)	6	A

Teaching languages

Dutch

Keywords

computer networks, telecommunication networks, Internet, TCP/IP

Position of the course

This is a basic course with as major goal to teach students the basic concepts and operational aspects of communication networks, with emphasis on internet technology.

Contents

The Internet: Top-down Model, Application Layer, Transport Layer, Network Layer, Data Link Layer, Network Security

Initial competences

Use of Linux operating system.

Final competences

1 Being able to work with the following concepts: protocol reference model; application layer protocols HTTP, SMTP, POP, …; state diagram, message sequence chart, retransmission protocols, routing protocols (IGP and EGP), sub networks, addressing, MAC protocols, Ethernet switching, security protocols.
2 Understand how to build a network, applications versus application layer protocols, reliability, flow and congestion control, routing en switching, network hierarchy, medium access control, public versus symmetric encryption, authentication, encryption, integrity, architecture.
3 Use and development of application layer protocols
4 Setup of IP networks
5 Configuration of Ethernet networks
6 Design and set-up of a secure network (layer 2 up to layer 5)
7 Have critical attitude during the design and evaluation of communication networks, based on a thorough understanding of the technical issues.

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

Lecture, Practical

Learning materials and price

"Computer Networking: A top-down approach featuring the Internet", James F. Kurose, Keith W. Ross; 8th edition; Addison Wesley, 2021, ISBN 978-1292405469. (indicative price: 55 euro)

References

- "Computer Networks", Andrew S. Tanenbaum; 6th edition; Pearson Education International, 2021, ISBN 978-1292374062
- "TCP/IP Illustrated, Volume 1", W. Richard Stevens, Addison Wesley, 2011, ISBN 978-0321336316
- Kozierok, Charles M. *The TCP/IP guide: a comprehensive, illustrated Internet protocols reference*. No Starch Press, 2005.

Course content-related study coaching

Support using e-mail and by appointment, on-campus interaction moments, use of the electronic learning environment and feedback about the practical exercises

Assessment moments

end-of-term and continuous assessment

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

Written assessment

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

Written assessment

Examination methods in case of permanent assessment

Skills test, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

Extra information on the examination methods

During examination period: written closed-book exam; written open-book exam - problems
During semester: graded lab sessions. Second chance: Not possible
5 quoted labs in the second half of the semester.

Calculation of the examination mark

25% evaluation during semester, 75% evaluation during examination period