

Communication Networks (E008620)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size (nominal values; actual values may depend on programme)
Credits 6.0 Study time 180 h Contact hrs 60.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 1)	Dutch	Gent	teaching methods	hours
			practicum	20.0 h
			lecture: plenary	10.0 h
			exercises	
			lecture	30.0 h

Lecturers in academic year 2020-2021

Tavernier, Wouter	TW05	lecturer-in-charge
Demeester, Piet	TW05	co-lecturer

Offered in the following programmes in 2020-2021

programme	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
Bachelor of Science in Computer Science Engineering	6	A
Bachelor of Science in Electrical Engineering	6	A
Master of Science in Geomatics and Surveying	6	A

Teaching languages

Dutch

Keywords

computer networks, telecommunication networks, Internet

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, hub versus switch, 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 Set-up of IP networks
- 5 Configuration of ethernet local area 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

Guided self-study, lecture, online discussion group, practicum, lecture: plenary exercises, lecture: response lecture, online seminar: coached exercises

Learning materials and price

"Computer Networking: A top-down approach featuring the Internet", James F. Kurose, Keith W. Ross; 7th edition; Addison Wesley, 2017, ISBN 1-292-15359-8.

References

- "Computer Networks", Andrew S. Tanenbaum; fourth edition; Pearson Education International, 2003, ISBN 0-13-038488-7, of Nederlandstalige versie
- "TCP/IP Illustrated, Volume 1", W. Richard Stevens, Addison Wesley, 1994, ISBN 0-201-63346-9
- "Networks and Telecommunications : Design and Operation", M. Clark, Wiley, second edition, 1997, ISBN 0 47197346 7

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

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination, open book examination

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

Written examination, open book examination

Examination methods in case of permanent evaluation

Skills test, report

Possibilities of retake in case of permanent evaluation

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

Frequency: 4 practical exercises in the weeks 5 to 11.

Calculation of the examination mark

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