UCLouvain

linfo2147

2026

Communication networks

5.00 credits	30.0 h + 15.0 h	Q1

Teacher(s)	Pelsser Cristel ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	Required#: basic notions of programming as taught in courses LINFO1101 or LEPL1401
Main themes	• Introduction, media access control, layered models, • Internet Protocol, IP routing, introduction to IPv6, • DNS, e-mail, common protocols, • Multimedia networking (streaming, VoIP, DVB), • Network security and advanced topics.
Learning outcomes	**At the end of this learning unit, the student is able to :** With respect to the AA referrng system defined for the Master in Electrical Engineering, the course contributes to the development mastery and assessment of the following skills : • AA1.1, AA1.3 • AA2.1, AA2.3, AA2.4 • AA5.1, AA5.2, AA5.3, AA5.5. At the end of this course, the students will be able to: • understand the architecture of communication networks, • identify the routing strategies which are best suited to a particular network topology, • identify transport protocols appropriate for a given service, • solve simple connectivity issues, • design architectures allowing secure communications. Transverse learning outcomes : • use a network simulation tool; • configure network parameters of a Linux based system using low-level commands; • configure a router using a (Cisco) IOS-like syntax.
Evaluation methods	Written exam (80%) Homework (20%) The homework cannot be redone for the second session. The grade obtained during the second session replaces all the previous grades.
Teaching methods	- Traditional lectures, - Exercices, - Labs in computer room allowing the student to use the theoretical concepts seen during the lecture on a simulated network
Content	• Introduction to communication networks, • Media Access Control, Layered models, • Internet Protocol, IP fragmentation, • UDP, TCP, ICMP, traceroute & PMTU discovery, • Static IP routing, dynamic routing (algorithms and protocols), • DNS, e-mail (SMTP, POP3, IMAP4), • common protocols (HTTP, FTP, etc.), • streaming protocols, • NAT, introduction to IPv6, • wireless network protocols (3G/4G/5G, Wifi, BlueTooth, BLE), • wearable devices, IoT & smart sensors (Zigbee, NFC, Lora, Sigfox), • introduction to network security,.
Inline resources	Moodle : https://moodle.uclouvain.be/course/view.php?id=768
Bibliography	- Notes de cours, - James Kurose and Keith Ross, «Computer Networking, A Top-Down Approach Featuring the Internet».

Other infos	Students will program in python for some labs. Basic knowledge of the programming language is a plus.
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Environmental Bioengineering	BIRE2M	5		
Master [120] in Electrical Engineering	ELEC2M	5		
Master [120] in Chemistry and Bioindustries	BIRC2M	5		
Master [120] in Electro-mechanical Engineering	ELME2M	5		
Master [120] in Agricultural Bioengineering	BIRA2M	5		