UCLouvain

lingi1341

2017

Computer networks

5 credits	30.0 h + 30.0 h	Q1

Teacher(s)	Bonaventure Olivier ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	Within SINF1BA : LSINF1252 Within FSA1BA : LFSAB1101, LFSAB1102, LFSAB1201, LFSAB1202, LFSAB1301, FSAB1401 *The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes	• Role, model and requirements of distributed applications • Reference model used in computer networks • Reliable transport of information in data networks : mechanisms and protocols • Interconnection of networks, addressing, routing : mechanisms and protocols • Local Area, Metropolitan and Wide Area Networks
Aims	Given the learning outcomes of the "Bachelor in Engineering" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes: • AA.1.1, AA.1.2 • AA2.5-7 • AA3.2 • AA4.1-4 Given the learning outcomes of the "Bachelor in Engineering" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes: • S1.I7 • S2.2-4 • S4.3 • S5.2-5 1 • S6.2-3 Students completing successfully this course will be able to • explain the main requirements of distributed and multimedia applications • explain the functions used to fulfill those requirements in the different layers of the networking reference model • explain how those functions are implemented in the Internet protocols • select the appropriate solution based on the application's requirement • estimate the characterícstic quantities related to networks Students will have developed skills and operational methodology. In particular, they have developed their ability to • argue in a group to bring out a common solution based on solid foundations ; • write a summary report containing the items you want to highlight . - - - - *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods	The evaluation is composed of four parts : • a group project on a protocol implementation worth 3 out of 20 points • an individual review of two group works , worth 1 out of 20 points • an individual report that explains how a server / application works, worth 3 out of 20 points • the final exam, worth 13 out of 20 points In addition, students can obtain a bonus if they actively contribute to the course syllabus. The group project and associated reviews can only be passed once. The individual project can be updated by submitting a new version before the start of the second session.

Teaching methods	The course combines lectures, supervised exercise sessions, group work and individual work
Content	Basic principles of networks operating (reliable transfer, routing, naming / addressing, resource sharing, security basics, ...) Analysis of the main protocols used on the Internet (HTTP, DNS, TLS, TCP, UDP, IP, OSPF, BGP, Ethernet, WiFi, ...)
Inline resources	http://cnp3book.info.ucl.ac.be http://moodleucl.uclouvain.be/course/view.php?id=7995
Bibliography	• Computer Networking : Principles, Protocols and Practice , livre open-source • transparents en ligne
Other infos	Background : • high-level programming language • Unix environment
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Biomedical Engineering	GBIO2M	5		
Bachelor in Computer Science	SINF1BA	5	LSINF1252 AND LSINF1101 AND LSINF1102 AND LSINF1103	
Minor in Engineering Sciences: Computer Sciences	LSINF100I	5	LSINF1252	
Minor in Computer Sciences	LINFO100I	5	LSINF1103 AND LSINF1225	