LINGI1341
2014-2015

Computer networks: information transfer

5.0 credits	30.0 h + 30.0 h	1q

Teacher(s) :	Bonaventure Olivier ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Inline resources:	> http://cnp3book.info.ucl.ac.be > http://moodleucl.uclouvain.be/course/view.php?id=7995
Prerequisites :	Within SINF1BA : LSINF1252 Within FSA1BA : LFSAB1101, LFSAB1102, LFSAB1201, LFSAB1202, LFSAB1301, FSAB1401
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 -- 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 charactericstic 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, ...)
Bibliography :	-- Computer Networking : Principles, Protocols and Practice open-source textbook. -- Slides online
Other infos :	Background : -- high-level programming language -- Unix environment
Cycle and year of study :	> Master [120] in Computer Science and Engineering > Master [120] in Computer Science > Master [60] in Computer Science > Master [120] in Biomedical Engineering > Master [120] in Electrical Engineering > Master [120] in Mathematical Engineering > Bachelor in Engineering > Bachelor in Economics and Management > Bachelor in Mathematics > Preparatory year for Master in Computer science > Bachelor in Computer Science
Faculty or entity in charge:	INFO