

Implementation plan Finished

Study unit	ICT Network Infrastructure (A9064), 5.0
Implementation	NIA1321: 2/2013-2014 (28.01.2014 - 24.04.2014)
Type	INITIATION OF PROFESSIONAL GROWTH (A029)
Groups	Primary: NIA13SN Others :
Involved in the project	
Lecturers	Jouni Takala, visiting lecturers
Number of participants	Minimum: Maximum:
Enrolment period	02.12.2013 08:00 - 08.12.2013
Main timing for implementation	On working days during daytime
Applicability	For exchange students: Yes For elective studies: No Open UAS student: Yes Suitable for virtual UAS: No
Teachers	Takala Jouni (Teacher in charge), Salmenkylä Riku (Other teacher)
Campus	Laurea Leppävaara
Main location for implementation	At the campus
Implementation method	Optima realization/student group, Other method of implementation Language: English Virtuality: 0 cr Integration of R&D: 0 cr
Implementation class	LbD based on entrepreneurship
Focus areas	Security, safety and social responsibility, Service business, Student entrepreneurship
Evaluation at the latest	24.05.2014 Storing of graded material ends.: 21.06.2015
Exam days	
Having completed the study unit the student is able to	- describe and demonstrate the concepts of IP networks including routing, LANs, WANs and IP subnetting - analyse the project tasks related to building, expanding, managing and maintaining networks, independently and in groups - justify solutions related to ICT data network projects
Previous studies	Data Networks or equivalent knowledge
Learning objectives	The overall objective is to understand how computers in a network can exchange information. This includes- the purpose and structure of an IP address (like 192.168..0.1) - the purpose and structure of a subnet mask (like 255.255.255.0 or /24) - the purpose of subnetting - the essential protocols that are needed to switch and route packets from one computer to another - the ways that computers can access (be connected to) the networks - the devices (cable, host, switch, router, AP, transmission equipment, FW, etc) needed to build a worldwide network - the ways how to manage these devices (focus on a switch and a router and a proprietary operating system IOS) - the services that the computers can offer to the network (or to the users) as well as the services they can utilize
Contents	This implementation is structured as follows: A. Theory base supported by home assignments, assessed with 2 exams

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	1. Mathematical background of networking/subnetting (Exam 1) 2. Concepts (Exam 2) a) Key networking protocols b) Wide Area Networks and routing IP packets through them c) Local Area Networks and switching packets within them d) Accessing WANs and LANS, wired and wireless types e) Services in WAN's and LANS f) Security and Network management B. Lab exercises to practise the theory concepts Three exercises in the Networks Lab and one cabling exercise in Laurea Leppävaara premises. Details of the implementation are given in the learning events.
Study material	The books referred to in this study unit are 1. Odom, W. 2011. CCENT/CCNA ICND1 (3rd ed.) or CCENT Cisco Certified Entry Networking Technician Study Guide (2nd ed) - electronic book available to read http://laurea.ebib.com/patron/FullRecord.aspx?p=11056902. Donoso, Y. 2009. Network Design for IP Convergence - electronic book available to read http://laurea.ebib.com/patron/FullRecord.aspx?p=427038 - or to purchase, eg. http://www.booky.fi/search.php?search=+IP+Convergence 3. Wu, C, Irwin, J. 2013. Introduction to Computer Networks and Cybersecurity but the students are encouraged to use other sources, too, especially Internet
Evaluation criteria and methods	The following elements will be used for assessing the student performance: 1. Exams in two parts: A and B (grading 0-5 total) 2. Active participation in classroom/individual assignments (grading 0-5) 3. Lab exercises (pass/fail) Lab exercises are not graded and will not affect the total grade of the study unit except that all lab sessions must be completed to pass. Evaluation criteria credits weight 1 Exams (A+B) 3,000,60 2 Assignments and activity 1,000,40 3 Lab exercises 1,000,00

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Project (name)	No projects in this course
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Learning events

Date	o'clock/at h		Subject	Content	Status	Teachers
28.01.2014	9:00	2	Introduction			
31.01.2014	12:30	2	First topic		204	
04.02.2014	9:00	2	TBD		204	
07.02.2014	12:30	2	First topic			
18.02.2014	9:00	2	Subnetting	TBD	204	
21.02.2014	12:30		TBD			
25.02.2014	9:00					
04.03.2014	9:00					
11.03.2014	9:00					
14.03.2014	12:30					
25.03.2014	09:00					
28.03.2014	12:30	2	TBD	This date is tentatively added (Feb 21st) to the schedule. The content will be confirmed or the lecture cancelled later.	TBD	
01.04.2014	9:00					
22.04.2014	9:00					
29.04.2014	9:00					
02.05.2014	12:30					
06.05.2014	9:00					