Education: IT Technology

Unit Guide for the period: February 2016 – March 2016

Module/subject	*Network II*
Semester no.	2
Extent (ECTS)	5 ECTS
Unit description/purpose (from semester plan)	The objective is for the student to acquire advanced knowledge and skills within Network Design and Methodology, Network routing protocol, as well as the ability to use equipment to acquire hands-on experience **Knowledge:** The student has acquired knowledge on: o Network Design o OSPF o EIGRP o Network Management o Network analysis o Wireless LAN o Network Security **Skills:** The student is able to: o Apply knowledge on network routing protocol in connection with design, project planning, implementation of complex network solutions o Apply knowledge on network routing protocol in connection with administration, operation and monitoring of complex network solutions o Use up-to-date tools for construction, testing and maintenance of network systems o Apply knowledge on network routing protocol in order to have a secure network **Competences:** The student is able to: o Handle analysis, identification of requirements, solution proposals, design, preparation of requirements specification of network and security solutions in all project stages o Handle projecting and planning related to network and security solutions
Objectives of the learning	**Knowledge:** A. Understanding enterprise network architecture B. Understanding network design requirements for an organization

C. Describing existing network architecture
D. Understanding the hierarchical network model
E. Describe the Top-down network design approach
F. Understanding IPv4 and IPv6 addressing plans
G. Understanding EIGRP, OSPF and BGP design considerations in the enterprise environment
H. Understanding design of security technologies
I. Knowledge of enterprise infrastructure design
J. Knowledge of enterprise data center design
K. Understanding enterprise WAN and branch solutions
L. Understanding WAN transport technologies
M. Understanding network management protocols
N. Knowledge of wireless LAN design

Skills:
O. Designing an enterprise network architecture
P. Identifying network design requirements for an organization
Q. Identifying existing network architecture
R. Design using the hierarchical network model
S. Use the Top-down network design approach
T. Design of IPv4 and IPv6 addressing plans
U. Selecting and designing an enterprise routing protocol solutiuon
V. Implement appropriate security technologies in the network design
W. Creating a network security policy
X. Design of an enterprise infrastructure solution
Y. Design of enterprise data center solution
Z. Design of enterprise WAN and enterprise branch solution
AA. Selecting appropriate WAN transport technologies
BB. Selecting appropriate network management solutions
CC. Implementing wireless LAN in the network design

Competences:
This course will allow the participant to participate in enterprise network design solutions including the following competences:
DD. Network design methodology

EE. Using network structure models

FF. Enterprise LAN design including Data center

GG.   Wireless LAN solutions

HH. WAN technologies

II.   Routing protocols

JJ. Network security

Pedagogy and didactics	The basic knowledge required within the subject area is introduced through interactive classroom work, led by the teacher. The students will consolidate their knowledge through practical exercises, independent research of specified topics and preparation of presentations for the rest of the class.		
Literature	[1] - CCDA Official Exam Certification Guide, Third Edition (ISBN-13: 978-1-58720-177-6) CCDA 640-864 Official Cert Guide [2] Cisco Networking Academy – "Scaling Network Companion Gide" 2014: ISBN-13: 978-1-58713-328-2,ISBN-10: 1-58713-328-8 [3] A Practical Guide to Advanced Networking (3rd Edition) 3rd (third) Edition by Beasley, Jeffrey S., Nilkaew, Piyasat published by Pearson IT Certification (2012) ISBN: 9780789750709 [4] Computer Networks 5.th edition by Andrew S. Tanenbaum [5] Hand outs and references A. http://mars.merhot.dk/mediawiki/index.php/CCDA_-_en/Viborg_Kommune B. http://mars.tekkom.dk/cisco/pdf/Cisco_produkt_katalog_september_2009.pdf C. www.netacad.com D. http://mars.merhot.dk/mediawiki/index.php/CCDA_-_en [6] Cisco Networking Academy – "Connecting Network" 2014: ISBN-13: 978-1-58713-332-9, ISBN-10: 1-58713-332-6		

Topics/contents	Learning Objectives	Session structure	Teaching material and readings
Session 1	A,B	K1: Teacher led presentation K2: Exercises, presentation	[1] chapter 1-2 [3] chapter 1
Session 2	C,D,E	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[5] - A [2] chapter 1 (page 3-47)
Session 3	F	K1: Teacher led presentation K2: Exercises, presentation	[3] – Chapter 1

		K3: Readings, **assignment**	
Session 4	G	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[2] – Chapter 5-6
Session 5	G	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[2] – Chapter 7-8 [3] – Chapter 2-3
Session 6	G	K1: Teacher led presentation K2: Exercises, presentation K3: Readings, **assignment**	[3] – Chapter 10
Session 7	H	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[3] – Chapter 7 [5]
Session 8	H	K1: Teacher led presentation K2: Exercises, presentation K3: Readings, **assignment**	[3] – Chapter 7 [5]
Session 9	I	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[5] - D
Session 10	J	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[5] - D
Session 11	K	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[6] – Chapter 2
Session 12	K	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[6] – Chapter 3
Session 13	L	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[6] – Chapter 5
Session 14	M	K1: Teacher led presentation K2: Exercises, presentation K3: Readings, **assignment**	[6] – Chapter 8
Session 15	N	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[2] – Chapter 4
Session 16	N	K1: Teacher led presentation K2: Exercises, presentation K3: Readings	[2] – Chapter 4
Assessment of the module:	Continuous feedback and evaluation through interaction with the teacher. Continuous assignement asssessment and student participation in class		

NB: There could be some changes to the plan and students will be notified before the next session.

*Topics marked with red will not be covered in class. Wireless technology was covered in semmester 1.