HOGESCHOOL-UNIVERSITEIT BRUSSEL (HUB)
UNIVERSITY COLLEGE BRUSSELS
NETWORKING ACADEMY BRUSSELS

Postacademic Programme
2008-2009

CISCO NETWORKING ACADEMY
CCNA
CCNP

HOGESCHOOL-UNIVERSITEIT BRUSSEL (HUB)
UNIVERSITY COLLEGE BRUSSELS

HUB, is the result of a merger of one university and three Brussels-based university colleges (KU Brussel, Vlekho, HONIM and Ehsal). It is one of the key institutes for higher education in Brussels. HUB's professional Bachelor programmes are geared towards professional practise and aim to prepare students for the independent exercise of a profession. They are practise-oriented and include work placements. Our academic Bachelor programmes are primarily geared towards further studies at Master level and as such have a solid basis in research. The same holds for the Master programmes. Apart from the above bachelor and master programmes the Hogeschool-Universiteit Brussel (University College Brussels) organises post-bachelor programmes, post-master programmes and a number of postgraduate programmes. The Ehsal Management School and the Centre for postacademic and postgraduate studies welcome about 9,000 students every year. Both hold an outstanding reputation in the business world. Specialist professors with a unique expertise guarantee the quality and a high level training.

POST ACADEMIC COURSE FOR IT SPECIALISTS
CISCO NETWORKING ACADEMY FOR SYSTEM & NETWORK MANAGERS

NETWORKING ACADEMY BRUSSELS is the institute within the Hogeschool-Universiteit Brussel offering the Cisco Networking Academy curriculum.

In the academic year 2008-2009 the Networking Academy Brussels offers a series of courses in close co-operation with Cisco, the world market leader in network and Internet technology.

The training leads to the post academic certificates **Cisco Networking Associate (CCNA)** and **Cisco Networking Professional (CCNP)**.

All courses are taught by experienced Certified Cisco Academy Instructors.

NETWORKING ACADEMY BRUSSELS
CISCO CERTIFIED NETWORKING ASSOCIATE
CCNA EXPLORATION
Version 4.0
24 evenings (October 2008 - June 2009)

The Cisco CCNA® Exploration curriculum provides a comprehensive overview of networking; from fundamentals to advanced applications and services. It is based on a top-down approach to networking that is popular in many colleges and universities. This course emphasizes theoretical concepts and practical application, while providing opportunities for students to gain the skills and hands-on experience needed to design, install, operate, and maintain networks in small-to-medium businesses, as well as enterprise and service provider environments.

CCNA Exploration offers in-depth theory, challenging labs, and a detailed overview of protocol operations. It is designed for students with advanced problem-solving and analytical skills, such as degree candidates in engineering, math, or science, or for working professionals who would like to advance their careers or gain certification. CCNA Exploration was designed to be integrated into technology curricula or continuing education programs at postsecondary institutions such as technical schools, colleges, and universities.

This curriculum presents a comprehensive overview of networking; from fundamentals to advanced applications and services. It is based on a top-down approach to networking. The course emphasizes concepts and skills required to design networks, while providing opportunities for practical application and hands-on experience by teaching students how to install, operate, and maintain networks.

Target Audience - Prerequisites

The target audience for CCNA Exploration includes students with sufficient problem solving and analytical skills.
CCNA Exploration is composed of four courses: Network Fundamentals, Routing Protocols and Concepts, LAN Switching and Wireless, and Accessing the WAN. Network Fundamentals is the first course and it has no prerequisites. It is a prerequisite for the other three courses. All course materials are in English.

Curriculum Objectives and certifications

After completing CCNA Exploration, students will be prepared to take the CCNA Certification Exam.

The curriculum provides students with the skills needed to succeed in networking-related degree programs and helps them prepare for CCNA certification. It also helps students develop the skills necessary to fulfil the job responsibilities of network technicians, network administrators, and network engineers. It provides a theoretically-rich, hands-on introduction to networking and the Internet.

CCNA Course Outline

CCNA 1 Network Fundamentals

This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. It uses the OSI and TCP layered models to examine the nature and roles of protocols and services at the application, network, data link, and physical layers. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. Labs use a "model Internet" to allow students to analyze real data without affecting production networks. Packet Tracer (PT) activities help students analyze protocol and network operation and build small networks in a simulated environment. At the end of the course, students build simple LAN topologies by applying basic principles of cabling; performing basic configurations of network devices, including routers and switches; and implementing IP addressing schemes.

Topics

What are networks? - Quality of service (QoS) - Security - Communications with Data Networks and the Internet - Network models – Protocols - OSI Application Layer - OSI Transport Layer - OSI Network Layer and Routing - Addressing the Network – IPv4 - Overview of IPv6 - Subnetting - Testing the network layer - OSI Data Link Layer - Media Access Control - OSI Physical Layer – LAN Technology – Ethernet - Address Resolution Protocol (ARP) - Shared versus dedicated Ethernet - Planning and Cabling Your Network – Network diagrams - Configuring and Testing Your Network - Configuring Cisco devices – Cisco IOS basics - Applying a basic configuration using Cisco IOS - Host configuration - Verifying connectivity - Monitoring and documenting networks

CCNA 2 Routing Protocols and Concepts

This course describes the architecture, components, and operation of routers, and explains the principles of routing and routing protocols. Students analyze, configure, verify, and troubleshoot the primary routing protocols RIPv1, RIPv2, EIGRP, and OSPF. By the end of this course, students will be able to recognize and correct common routing issues and problems. Each chapter walks the student through a basic procedural lab, and then presents basic configuration, implementation, and troubleshooting labs. Packet Tracer (PT) activities reinforce new concepts, and allow students to model and analyze routing processes that may be difficult to visualize or understand.
Prerequisites: Network Fundamentals

Topics

Introduction to Routing and Packet Forwarding - Inside the router - CLI configuration and addressing review - Routing tables - Path determination and switching functions - Router configuration labs - Static Routes - Summary and default static routes - Managing and troubleshooting static routes - Static route configuration labs - Dynamic Routing - Classifying dynamic routing protocols - Metrics - Administrative distances - Routing protocol and subnetting labs - Distance Vector Routing Protocol - Network discovery - Routing table maintenance - Routing loops - Basic RIPv1 configuration - Verification and troubleshooting - Automatic summarization - Default route and RIPv1 - Troubleshooting - RIPv1 configuration labs - Classless Routing Protocols, VLSM and CIDR - Variable-length subnet masking (VLSM) - Classless interdomain routing (CIDR) - VLSM and classless routing labs - Configuring RIPv2 - VLSM and CIDR with RIPv2 - Verifying and troubleshooting RIPv2 - RIPv2 configuration labs - Routing table structure - Classless routing behavior - Equal cost load balancing - Routing table lab - EIGRP - Basic EIGRP configuration - EIGRP metric calculation - Features of EIGRP - Establishing adjacencies - Diffusing Update Algorithm (DUAL) - More EIGRP configurations - Verifying and troubleshooting EIGRP - EIGRP configuration labs - Link-State Routing Protocols - Concept of link-state routing protocols - Link-state process - OSPF - Basic OSPF configuration - OSPF router ID - OSPF metric calculation - Establishing adjacencies - OSPF and multi-access networks - More OSPF configuration - Verifying and troubleshooting OSPF - OSPF lab configuration

CCNA 3 LAN Switching and Wireless

This course helps students develop an in-depth understanding of how switches operate and are implemented in the LAN environment for small and large networks. Beginning with a foundational overview of Ethernet, this course provides detailed explanations of LAN switch operation, VLAN implementation, Rapid Spanning Tree Protocol (RSTP), VLAN Trunking Protocol (VTP), Inter-VLAN routing, and wireless network operations. Students analyze, configure, verify, and troubleshoot VLANs, RSTP, VTP, and wireless networks. Campus network design and Layer 3 switching concepts are introduced.

Topics

Ethernet Revisited - Switching Concepts – Cisco IOS Software and Cisco Discovery Protocol - Inside the Switch - Campus Network Design - Basic Switch Configuration - VLANs and IP Telephony Basics - Rapid Spanning Tree Protocol - Trunking and VLAN Trunking Protocol - Inter-VLAN Routing - Wireless Networks and Mobility - Campus LANs

CCNA 4 Accessing the WAN

This course explains the principles of traffic control and access control lists (ACLs) and provides an overview of the services and protocols at the data link layer for wide-area access. Students learn about user access technologies and devices and discover how to implement and configure Point-to-Point Protocol (PPP), Point-to-Point Protocol over Ethernet (PPPoE), DSL, and Frame Relay. WAN security concepts, tunneling, and VPN basics are introduced. The course concludes with a discussion of the special network services required by converged applications and an introduction to quality of service (QoS).

Topics

Managing Traffic: Access Control Lists - Addressing Hosts: Network Address Translation, Dynamic Host Configuration Protocol, and IPv6 Basics – Security - Introduction to WAN Technologies - WAN Devices and Connections: CSU, Cable Modem, and DSL Modem - Connecting to the WAN: Leased Lines, Cable, and DSL - Point-to-Point Protocol and Point-to-Point Protocol over Ethernet - Frame Relay - QoS Considerations - Tunneling Concepts and VPN Basics - Converged Networks

CCNA-course dates

All sessions are organised on Wednesdays from 6 pm till 10 pm

CCNA 1 Networking Fundamentals

17-09-08 24-09-08 01-10-08
08-10-08 15-10-08 22-10-08

CCNA 2 Routing Protocols and Concepts

05-11-08 12-11-08 19-11-08
26-11-08 03-12-08 10-12-08

Individual coaching sessions:
17-12-08 07-01-09 14-01-09
21-01-09 28-01-09

CCNA 3 LAN Switching and Wireless

04-02-09 11-02-09 18-02-09
04-03-09 11-03-09 18-03-09

Individual coaching sessions:
25-03-09 01-04-09

CCNA 4 Accessing the WAN

22-04-09 29-04-09 06-05-09
13-05-09 20-05-09 27-05-09

Individual coaching sessions:
03-06-08 10-06-09 17-06-09
24-06-09

NETWORKING ACADEMY BRUSSELS
CISCO CERTIFIED NETWORKING PROFESSIONAL CCNP
Version 5.0
24 evenings (September 2008 - June 2009)

The Cisco CCNP® curriculum includes four modules, which align with the four exams required for CCNP certification. The four courses include: Building Scalable Internet works, Implementing Secured Converged Wide-area Networks, Building Multilayer Switched Networks, and Optimizing Converged Networks. Students can enrol in two CCNP modules in one academic year. Modules can be taken in any order, provided that the student has current CCNA knowledge and skills.

The CCNP curriculum teaches the advanced skills required to manage en-to-end network infrastructures and applications deployed on the edge of a network such as wireless, security and voice

The CCNP curriculum builds on Cisco CCNA® courses with more complex network configurations, diagnosis, and troubleshooting. The curriculum is intended for those interested in continuing their post-CCNA preparation to become network administrators, Level 2 support engineers or systems engineers, network technicians, or deployment engineers. Cisco CCNP courses open doors to rewarding careers and opportunities for economic advancement and local community development. With the ever-increasing demand for their skills, networking academy students have the chance to dream about business-critical positions never imagined before.

Target Audience - Prerequisites - Target Certification

Students interested in this course should have completed CCNA 1-4, or the equivalents. CCNA certification is also desirable; however, it is not a prerequisite. The new CCNP courses can be taken in any order. In the academic year 2008-2009 we will start with the module CCNP Building Scalable Internet works (Advanced routing). The curriculum was designed by Cisco and is in alignment with current Cisco CCNP exams.

Coaching policy

Each course is designed to be delivered in a 70 hour timeframe. 25 hours will be spent on curriculum content. 60 % of the contact hours will be designated to lab activities. Moreover the student works on a case derived from the own working environment. He receives extensive coaching in order to realize a high quality solution and optimal implementation strategy.

CCNP-Course Outline

Modules organised in 2008-2009

CCNP Building Scalable Internetworks (Advanced routing) Organised from September 2008 - January 2009

In this course, students will learn how to create an efficient and expandable enterprise network. Students will also learn how to install, configure, monitor and troubleshoot network infrastructure equipment. Topics include configuration of EIGRP, OSPF, IS-IS, and BGP routing protocols and how to manipulate and optimize routing updates between these protocols. Other topics include multicast routing, IPv6, and DHP configuration.

Topics

On completion of this module the student will be able to

- *Explain routing in the enterprise network*
- *Implement and verify multicast forwarding using PIM*
- *Implement IPv6 in an enterprise network*
- *Implement and verify EIGRP operations*
- *Build a scalable multi-areaz network with OSPF*
- *Certification Exam: BSCIv3.0 routing Protocols at Campus Edge and 642-901*

Implementing Secure Converged Wide-Area Networks (Remote Access) Organised from February 2009 – June 2009

Students are introduced to secure enterprise-class network services for teleworkers and branch sites. Students will learn how to secure and expand the reach of an enterprise network with a focus on VPN configuration and access, frame-mode MPLS, site-to-site IPSEC VPN, Cisco EZVPN, strategies used to mitigate network attacks, Cisco device hardening, and IOS firewall features

Topics

On completion of this module the student will be able to

- *Implement secure broadband connections for teleworkers*
- *Describe Cisco network architecture alignment with connectivity requirements*
- *Describe MPLS conceptual model data and control planes*
- *Describe and configure a site-to-site IPSec VPN*
- *Describe and configure Cisco device hardening strategies to mitigate network attacks*

Modules organised in 2009-2010

Optimizing Converged Networks
Organised from September 2009 – January 2010

Optimizing converged networks introduces students to effective QoS techniques for optimization in converged networks with voice, wireless and security applications. Topics include implementing a VoIP network, specific mechanisms for implementing the DiffServ Qos model, Auto Qos, wireless security and basic wireless management

Topics

- *Describe the converged network requirements within Cisco conceptual network models with a focus on wireless security*
- *Describe basic principles of VOIP network bandwith requirements. VOIP packet encapsulation, and VOIP implementation*
- *Explain the key IP Qos mechanisms used to implement the diffServ Qos model*
- *Configure Cisco AutoQos model*
- *Describe and configure wireless security and basic wireless management*

CCNP: Building Multilayer Switched Networks
Organized from February 2010 – June 2010

Multilayer Switching teaches students about the deployment of state-of-the-art campus LANs. The course focuses on the selection and implementation of the appropriate Cisco IOS services to build reliable, scalable multilayer-switched LANs. Focus areas of the course include VLANs, Spanning Tree Protocol, wireless client access, minimizing service loss and minimizing data theft in a campus network. This hands-on, lab oriented course stresses the design, implementation, operation and troubleshooting of multilayer switched networks

Topics

- *Define VLANS to segment network traffic*
- *Explain Cisco hierarchy network model for campus networks*
- *Implement Spanning Tree Protocol and implement and verify InterVLAN routing*
- *Design and implement security features*
- *Implement high-availability technologies and techniques*
- *Describe and configure wireless LAN access and swithes to support voice*

CCNP-course dates

All sessions are organised on Thursdays from 6 pm till 10 pm

CCNP Building Scalable Internetworks

18-09-08 25-09-08 02-10-08
09-10-08 16-10-08 23-10-08
06-11-08 13-11-08 20-11-08
27-11-08 04-12-08 11-12-08

Individual coaching sessions:
18-12-08 08-01-09 15-01-09
22-01-09 29-01-09

CCNP Implementing Secure Converged Wide-Area Networks

05-02-09 12-02-09 19-02-09
05-03-09 12-03-09 19-03-09
26-03-09 02-04-09 23-04-09
07-05-09 14-05-09 28-05-09

Individual coaching sessions:
04-06-09 11-06-09 18-06-09
28-06-09

The following courses will be offered in the academic year 2009-2010

- ☐ CCNP Optimizing Converged Networks
  12 weeks (September 2009 – January 2010)
- ☐ CCNP Building Multilayer Switched Networks
  12 weeks (January 2010 – June 2010)

HOW TO APPLY?

Tuition fee and education vouchers

The tuition fee for 24 sessions CCNA is **1250 €** (all in). This includes: on-line course materials, catering (sandwiches) at each session and the use of the underground car park.
The tuition fee for 12 sessions CCNP will be **850 €** (all in).
The tuition fee for 24 sessions CCNP will be **1550 €** (all in).

HUB is recognized as an official training centre by the Flemish Community. Hence companies located in the Flemish region can apply for the BEA training vouchers issued by the Flemish authorities.
http://vdab.be/opleidingscheques/bedrijven.shtml
Individuals who live in Brussels or in the Flemish region can apply for the VDAB-training vouchers (max. 250 €).
http://vdab.be/opleidingscheques/werknemers.shtml
For more information call Stefaan Debrabandere 32 479 70 97 14/ 32 2 412 51 30.

Venue and parking facilities

All sessions will take place at Hogeschool-Universiteit Brussel, campus Koekelberg, Vrijheidslaan 17, 1081 Brussel (near to the Koekelberg basilica) from 6 pm till 10 pm every Wednesday.
The campus underground car-park is free.
Entry is via by Rue F. Vande Sande.

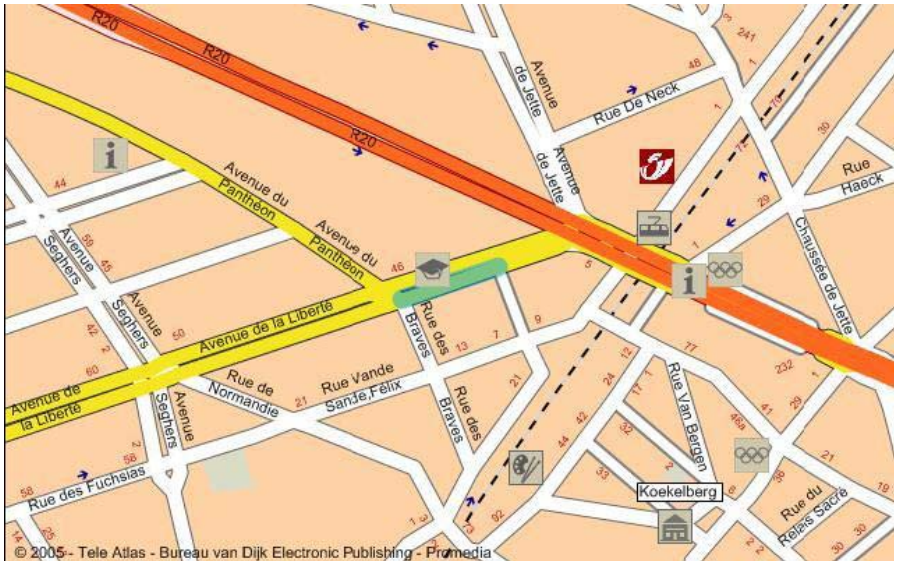
More questions?

Numbers of participants are limited. For further information contact HUB tel. 02 412 51 30 (Stefaan Debrabandere). Enrolment fees should be paid into account 439-2200501-52 before **September 15, 2008.**

How to reach HUB campus Koekelberg?

HUB Campus Koekelberg is near the Koekelberg Basilica, and near the metro station "Simonis".

To reach the underground car park (recommended), coming from Brussels-city, take the first street on the left, AFTER the metro station Simonis and then turn immediately to the right (Rue F Vande Sande).



ENROLMENTFORM

by fax: 02 412 51 23
or
by e-mail: stefaan.debrabandere@hubrussel.be
Before September 15

Networking Academy Brussels

Name + first name ……
Address …….
……
Diploma : ……
Current Job: ……
Current Certification Level: ……
Tel.: …… Fax: ……
Email address (write clearly please) …… …… @……
HUB/HONIM Alumnus YES/NO

Tick the course for which you enrol:

- ☐ Cisco Certified Networking Associate - CCNA Exploration v. 4.0
  24 weeks (September 2009 – June 2009)
  1250 Euro
- ☐ CCNP Building Scalable Internetworks (CCNA mandatory)
  12 weeks (September 2008 – January 2009)
  850 Euro
- ☐ CCNP Implementing Secure Converged Wide-Area Networks
  12 weeks (January 2009 – June 2009)
  850 Euro
- ☐ CCNP Building Scalable Internetworks
  + CCNP Implementing Secure Converged Wide-Area Networks
  24 weeks (September 2009 – June 2009)
  1550 Euro

My enrolment is only valid after payment. Payment should be made before September 15, 2007. An invoice will be sent.

Date and signature

Within a week you will get an acknowledgement of enrolment

Your personal data will be only be used for the needs of this training programme!
Hogeschool-Universiteit Brussel – campus Koekelberg – c.o. Mr. Stef Debrabandere,
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e-mail: stefaan.debrabandere@hubrussel.be