

Information Systems Management

Postgraduate Degree Programme

Odisee University College Brussels

2017-2018

Context

Odisee University College offers a range of postgraduate and other courses for alumni students and other ICT professionals.

This document describes the postgraduate modules relating to **Information Systems and Network Management**.

The postgraduate course offers modules in several domains

- Internet and Network Design & Management
- Cybersecurity & Cyber Operations
- Datacenter & Cloud, Fiber Optic Networks
- Internet of Things & Big Data

The Internet & Networking courses are developed in close collaboration with **Cisco Systems** as a part of the global **Cisco Networking Academy** project. Moreover, all courses prepare for official Cisco certification exams.

The datacenter & cloud course is in collaboration with **Corning Network IQ, Cisco and VMware IT Academy** and may also prepare for official certification exams. VMware certification is a possibility.

Opportunity

The Internet is changing life as we know it, bringing new economic and social opportunities to communities throughout the world, and increasing the global demand for information and communication technology (ICT) skills.

Innovations such as social networking, cloud computing, virtualization, the Internet of Everything, e-commerce and online collaboration are changing the way we live, work, play, learn and do business. These capabilities are all powered by networks and datacenters and organizations around the world are experiencing a shortage of qualified ICT candidates to design, install, troubleshoot and manage networks.

After sufficient preparation, students may be allowed to enter the Cisco Engineer Incubator Programme preparing you for a job in the Brussels-based Cisco TAC Labs.

What is Cisco Engineer Incubator?

Special educational program designed by Cisco Engineers and Cisco Networking Academy Program to support employability of talented students and graduates interested in networking technologies and starting the career in IT.

Who is it for?

Graduates with CCNA-level knowledge of networking technologies, ready to learn and develop, who see themselves as professionals in IT industry in the future.

More information: <http://biasc.be/2017/05/cisco-incubator-programme-for-netacad-students-in-belgium.html>

Target Audience

The curriculum of this postgraduate programme is aimed at ICT professionals seeking enterprise-level networking and system management skills, preparing them for job roles such as system engineer, system integrator, network engineer and network consultant. Other courses focus on topics like Cybersecurity, Cyber Operations, Internet of Things and Big Data preparing you to be a security consultant or a data engineer. The courses are open for people with a formal degree in higher education. Others are free to apply by providing a detailed overview of relevant professional experience.

List of Course Modules

Code	Course Module	Level	ECT S	Prerequisite
NM01	Network Design & Interconnecting Network Devices 1	CCNA	8	-
NM02	Network Design & Interconnecting Network Devices 2	CCNA	8	NM01 or CCENT
NM03	Cybersecurity, Cyber Operations & CCNA Security	Specialist	8	NM01 or CCENT
NM04	Advanced Switching	CCNP	10	NM02 or CCNA
NM05	Advanced Routing	CCNP	10	NM02 or CCNA
NM06	Datacenter & Cloud	ASS/PRO	8	NM01 or CCENT
NM06B	Internet of Things & Big Data	PRO	8	-
NM07	Information Systems Management Case Study	PG	8	NM03/04/05

The programme has a modular design allowing you to choose the modules that best fit your situation. You can start with modules NM01, NM02 or NM03 depending on your background and experience. The last column above indicates the prerequisites for each module. The core of the programme are the modules NM03, NM04 and NM05. In order to obtain the postgraduate certification you have to earn 30 erts credits and complete a case study (NM07).

Most courses are online and include minimally 36 hours of intensive lab work. Apart from the intensive hands-on labs you can improve your knowledge and understanding by taking online tests and doing simulation exercises.

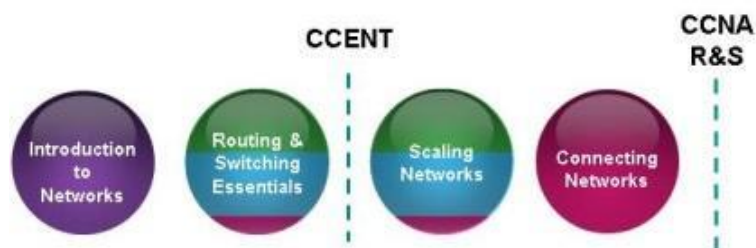
Course Content

CCNA Level Courses

Cisco Certified Networking Associate

CCNA Routing and Switching provides a comprehensive overview of internet and networking concepts, applications, protocols and services.

The first two modules teach you all the way towards the CCENT and CCNA R&S certification levels. The image below displays the four courses that make up the modules 1 and 2 in our degree programme.



Module 1: Network Design & Interconnecting Network Devices 1 Cisco Certified Networking Associate (CCENT)

This course prepares for ICND1 Certification and is composed of two fundamental CCENT courses. This CCNA Routing and Switching curriculum describes the architecture, components and operations of routers and switches in a small network. For this course the main prerequisite is that you are fluent with PC's, laptops, tablets, smartphones and the Internet. By the end of the course, you will be able to build LANs, perform basic configurations for routers and switches, and implement IP routing. You will learn how to design networks and configure routers and switches for the necessary functionality.

Code: NM01 Level: CCNA ECTS: 8 Lab Work: 36 hours Price: € 600 Estimated Time To Complete: 140 hours	Lab Room: 5306 Day: Monday or Thursday Time: 18-21 Semester: 1 Prerequisite: Fluency in ICT and Internet
---	---

Course Description

<p>CCNA Routing and Switching Part 1</p> <ul style="list-style-type: none"> • Network Protocols and Communications • Configuring a Network Operating System • Network Access • Ethernet • Network Layer • Transport Layer 	<p>Introduction to Networks (Version 6)</p> <ul style="list-style-type: none"> • IP Addressing & Subnetting IP Networks • Application Layer • Extended Trace Route • Debugging • Network Troubleshooting
<p>CCNA Routing and Switching Part 2</p> <ul style="list-style-type: none"> • Basic Switching Concepts and Configuration • VLANs • Routing Concepts • Inter-VLAN Routing • Static & Dynamic Routing • Single-Area OSPF • Access Control Lists 	<p>Routing & Switching Essentials (Version 6)</p> <ul style="list-style-type: none"> • DHCP • Network Address Translation for IPv4 • Host Routes • Device Discovery • Network Time Protocol NTP • Password Recovery

Module 2: Network Design & Interconnecting Network Devices 2

Cisco Certified Networking Associate Routing & Switching

This course prepares for ICND2 Certification and is composed of the two CCNA routing and switching courses. If you have finished NM01 or are CCENT certified you can enrol for this course. The first course in the CCNA Routing and Switching curriculum describes the architecture, components, and operations of routers and switches in large, complex networks. Students learn how to configure and troubleshoot routers and switches for advanced functionality and resolve common issues with protocols in both IPv4 and IPv6 networks. By the end of the second course, students learn how to configure and troubleshoot network devices and implement virtual private networks and are ready to prepare for the CCNA R&S certification.

<p>Code: NM02 Level: CCNA ECTS: 8 Lab Work: 36 hours Price: € 600 Estimated Time To Complete: 140 hours</p>	<p>Lab Room: 5306 Day: Monday or Thursday Time: 18-21 Semester: 2 Prerequisite: NM01 or CCENT ICND1</p>
--	--

Course Description

CCNA Routing and Switching Part 3 <ul style="list-style-type: none">● Scaling Networks● LAN Redundancy● Link Aggregation● Wireless LANs● Multi area OSPF● EIGRP Advanced Configurations and Troubleshooting	Scaling Networks <ul style="list-style-type: none">● IOS Images and Licensing● VTP, Extended VLANs, and DTP● Troubleshoot Multi-VLAN● Switch Stacking● Implement HSRP● Troubleshoot Multi-area OSPF
CCNA Routing and Switching Part 4 <ul style="list-style-type: none">● WAN Topologies● DMVPN● Implement PPPoE & eBGP● Common IPv6 ACL Errors● LAN Security Best Practices	Connecting Networks <ul style="list-style-type: none">● SNMPv3 Configuration● SPAN● Quality of Service● Cloud and Virtualization● Network Programming

Security Specialist Level Courses

Cybersecurity Essentials, Cyber Operations & CCNA Security

The Cybersecurity Course prepares for the specialist Security Certification and initiates you in the broad domain of Cybersecurity, Cyber Operations and Ethical Hacking.

Today's organizations are challenged with rapidly detecting cybersecurity breaches and effectively responding to security incidents. Teams of people in Security Operations Centers (SOC's) keep a vigilant eye on security systems, protecting their organizations by detecting and responding to cybersecurity threats. CCNA Cyber Ops prepares candidates to begin a career working with associate-level cybersecurity analysts within security operations centers.

CCNA Security introduces the core security concepts and skills needed to troubleshoot and monitor computer networks and help ensure the integrity of devices and data. It emphasizes the practical application of the skills needed to design, implement, and manage network security systems. The CCNA Security certification lays the foundation for job roles such as Network Security Specialist, Security Administrator and Network Security Support Engineer. It is the first step for individuals wishing to obtain their CCNP Security certification. In addition, the National Systems Security (INFOSEC) and the Committee on National Security Systems (CNSS) recognizes the Cisco CCNA Security courseware meets CNSS 4011 training. CCNA Security is a specialist course introducing the core security concepts and skills needed to install, troubleshoot, and monitor a network to maintain the integrity, confidentiality and availability of data and devices.

Module 3: Cybersecurity, Cyber Operations & CCNA Security

Cybersecurity Essentials, Cyber Operations & Implementing Cisco Network Security

Cybersecurity Essentials covers foundational knowledge and essential skills for all cybersecurity domains including information security, systems security, network security, ethics and laws, and defense and mitigation techniques used in protecting businesses.

The Cyber Operations course prepares for specialized CCNA SECFND exam. The SECFND exam tests a candidate's knowledge and skills needed to successfully handle the tasks, duties, and responsibilities of an associate-level Security Analyst working in a Security Operations Center (SOC).

The CCNA Security course prepares for specialized CCNA Security Certification. The main parts of this course are authentication, authorization, intrusion prevention, firewalls and virtual private networks. If you have finished NM01 or are CCENT certified you can enrol for this course.

Code: NM03 Level: CCNA Specialist ECTS: 8 Lab Work: 36 hours Price: € 600 Estimated Time To Complete: 140 hours	Lab Room: 5306 Day: Wednesday Time: 18-21 Semester: 1 Prerequisite: NM01 or CCENT ICND1
--	--

Course Description

Cyber Security Essentials Threats, Vulnerabilities and Attacks Confidentiality Integrity Availability	
Cyber Ops Cybersecurity and the Security Operations Center Windows Operating System Linux Operating System Network Protocols and Services Network Infrastructure Principles of Network Security Network Attack: A Deeper Look Cryptography and Public Key Infrastructure Endpoint Security and Analysis	CCNA Security: Implementing Network Security v2 Network Security Threats Securing Network Devices Authentication, Authorization and Accounting Implementing Firewall Technologies Implementing Intrusion Prevention Securing Local Area Networks Cryptographic Systems Implementing Virtual Private Networks Managing Secure Networks Implementing Cisco Adaptive Security Appliance

CCNP Level Courses

Cisco Certified Networking Professional

The CCNP Routing and Switching courses provide a comprehensive overview of enterprise-level networking concepts, including advanced routing, switching and troubleshooting.

CCNP teaches the advanced skills needed to install, configure, monitor and troubleshoot enterprise-sized networks. CCNP equips students with the knowledge and skills needed to plan, implement, secure, maintain, and troubleshoot converged enterprise networks.

Module 4: Advanced Switching

CCNP SWITCH: Implementing IP Switched Network Version 7

This course prepares for CCNP SWITCH Certification. If you have finished NMo2 or are CCNA certified you can enrol for this course.

Code: NMo4 Level: CCNP ECTS: 10 Lab Work: 36 hours Price: € 600 Estimated Time To Complete: 70 hours	Lab Room: 5306 Day: Wednesday or Thursday Time: 18-21 Semester: 1 or 2 Prerequisite: NMo2 or CCNA ICND2
---	--

Course Description

Implementing IP Switched Networks Version 7

- Campus Network Design & Architecture
- Spanning Tree Implementation
- InterVLAN Routing
- First Hop Redundancy Protocols
- Network Management
- Switching Features and Technologies
- High Availability
- Campus Network Security

Module 5: Advanced Routing

CCNP ROUTE: Implementing IP Routing Version 7

This course prepares for CCNP ROUTE Certification. If you have finished NM02 or are CCNA certified you can enrol for this course.

Code: NM05 Level: CCNP ECTS: 10 Lab Work: 36 hours Price: € 600 Estimated Time To Complete: 70 hours	Lab Room: 5306 Day: Wednesday or Thursday Time: 18-21 Semester: 1 or 2 Prerequisite: NM02 or CCNA ICND2
---	--

Course Description

- Advanced Configuration: EIGRP and OSPF
- BGP
- Manipulating Routing Updates
- Implementing Path Control
- Enterprise Internet Connectivity
- Routers and Routing Protocol Hardening

Free extra module

CCNP TSHOOT: Troubleshooting and Maintaining IP Networks

This hands-on course teaches how to monitor and maintain complex, enterprise routed and switched IP networks.

Datacenter & Cloud

Module 6: Datacenter & Cloud

Datacenter and cloud skills for the new IT world

This course introduces you to a number of important datacenter & cloud technologies: datacenter operations, storage, fiber optic networks, system virtualization, microservices and cloud applications.

Code: NMo6 Level: Associate/ Professional ECTS: 8 Lab Work: 36 hours Price: € 600	Lab Room: 5306 Day: Tuesday Time: 18-21 Semester: 1 Prerequisite: NMo1 or CCENT ICND1
--	--

Course Description

This introductory course consists of three parts

[1] Introduction: datacenter & cloud technologies: datacenter operations, storage, fiber optic networks, system virtualization, microservices and cloud applications

[2] Corning Network IQ: Fiber Optics: Basics & Standards; Cabling & Termination; Fiber Hardware, Measurement & Troubleshooting

[3] VMware VCA & VCP Foundations: **VCA:** Datacenter Virtualization DCV Fundamentals, Cloud Management & Automation, Hybrid Cloud Fundamentals, Network Virtualization Fundamentals, -Desktop & Mobility Fundamentals **VCP:** vSphere 6 Foundations

Module 6B: Internet of Things & Big Data

The Introduction to IoT (Internet of Things) course introduces learners to the technologies that support IoT, and the career and social opportunities created by the growing number of networked connections between people, processes, data and things.

The course consists of three parts:

- Introduction to IoT
- Connecting Things
- Big Data & Analytics

Code: NMo6B Level: Professional ECTS: 8 Lab Work: 36 hours Price: € 600 Estimated Time to Complete: 140 hours	Lab Room: 5306 Day: Tuesday Time: 18-21 Semester: 1 or 2 Prerequisite: -
--	---

Course Description

In the course **Connecting Things**, you learn how digitalization is transforming industries such as manufacturing, energy, and smart cars. Using a hands-on approach, you securely interconnect sensors, actuators, microcontrollers, single-board computers, and cloud services over IP networks to create an end-to-end IoT system. The **Big Data & Analytics** course focuses on the growing need for expertise in managing storing, manipulating and analysing and presenting data in a format useful for decisions by people and device.

Module 7: Information Systems Management Case Study

Prepare, Plan and Design an Enterprise Network

This course leads to postgraduate certification. It is necessary to have completed modules totalling 30 or more ects (including this module).

Code: NM07 Level: Postgraduate ECTS: 8 Lab Work: 36 hours Price: € 600	Lab Room: 5306 Day: Thursday Time: 18-21 Semester: 2 Prerequisite: NM03 or higher
---	--

You will select a relevant ICT Architecture and Network Management project and will be coached by one of our professional instructors.

Course Dates

Here is the general schedule for the different course modules in the postgraduate programme **ICT Infrastructure & Network Management**.

Code	Course Module	Lab Room	Day	Time +	Semester
NM01	Network Design & Interconnecting Network Devices 1*	5306	Monday or Thursday	18-21	1
NM02	Network Design & Interconnecting Network Devices 2*	5306	Monday or Thursday	18-21	2
NM03	Cybersecurity, Cyber Operations & CCNA Security*	5306	Wednesday	18-21	1
NM04	Advanced Switching*	5306	Thursday	18-21	1 or 2
NM05	Advanced Routing*	5306	Thursday	18-21	1 or 2
NM06	Datacenter & Cloud*	5306	Tuesday	18-21	1
NM06B	Internet of Things & Big Data	5306	Tuesday	18-21	1 or 2
NM07	Information Systems Management Case Study	5306	Wednesday or Thursday	18-21	2

* Every module requires you to take **36 hours** of lab work and a lot of time devoted to studying, planning and designing networks. Modules marked with an asterisk (*) are optional. The only requirement is that you finalize three modules according to the dependency rules in order to be allowed to hand in a case study.

+ On certain days it may be possible to start as early as 16 pm (depending on overall course scheduling)

Prerequisites

An official postgraduate certificate issued by ODISEE University College will only be granted to those students who have a formal degree of higher education at the minimum. Others will receive a certificate of participation.

Cost

The basic cost per semester is **600 euro**, but you can get a **20 % discount** if you pay for two semesters at once. The cost for one full academic year is **1000 euro**. Also, you are able to get training vouchers from the government.

Code	Course Module	Level	ECTS	Price
NM01	Interconnecting Network Devices 1*	CCNA	8	600
NM02	Interconnecting Network Devices 2*	CCNA	8	600
NM03	Cybersecurity, Cyber Operations & CCNA Security*	Spec	8	600
NM04	Advanced Switching*	CCNP	10	600
NM05	Advanced Routing*	CCNP	10	600
NM06	Datacenter & Cloud*	Ass/Pro	8	600
NM06B	Internet of Things & Big Data*	Pro	8	600
NM07	Information Systems Management Case Study	Pro	8	600
LAB	Additional Lab Access (per semester)			300

- (1) In order to obtain a postgraduate degree in **Information Systems Management** you need to acquire at least **30** **ects** including a case study (paper). For every extra module taken you will receive a specific certificate.
- (2) Every module on average takes 36 hours of lab work during one semester. The modules are mostly organized in a **blended learning** format. The labs are organized according to an **open learning center** setup.
- (3) You can work one to four evenings (3 to 12 hours) in the lab each week, depending on the availability.
- (4) The normal fee per semester is 600 euro. The fee includes: access to the networking labs and to the digital learning materials, hands-on labs and online tests.
- (5) Payments can be made per semester or annually. If you enrol and pay for two semesters at once, you will receive a 20% discount on the total amount of the payment. In that way the cost for a full year of training could be 1000 euro, if you pay at the beginning of the academic year.
- (6) Access to the labs is possible every regular semester week from Monday till Thursday. It is possible to change the day of the week upon request and depending upon the availability. You can take more than one module during one semester, depending on the availability.
- (7) Modules can be started in either semester, but are only organized when a sufficient number of participants are enrolled. NM06 will be planned in the first semester; an optional module NM06B will be organized in the second semester.
- (8) All prices are exclusive of 21% VAT.

Educational leave

Students may apply for educational leave. Our administration will prepare the necessary documents upon request.

Training vouchers (250 euro)

ODISEE University College is recognized as an official training center by the Flemish Community in Belgium. Hence companies located in the Flemish region can apply for the training vouchers issued by the Flemish authorities.

Individuals who live in Brussels or in the Flemish region can apply for the VDAB training vouchers (max. 250 euro).

More info: <http://vdab.be/opleidingscheques/werknemers.html>

Enrolment

Send your application form to:

Odisee - Groepscentrum Permanente Vorming (GPV) - Warmoesberg 26 - 1000 Brussel

Email: gpv@odisee.be

Contact information

Yvan Rooseleer, Program Coordinator

yvan.rooseleer@odisee.be, +32 474 56 45 76