Course Code	Course Name	ECTS Credit
MNC 471	Connecting Networks	7.5

Pre-Requisite	Course Type	Language of Instruction
MN681	Major Elective	English

Year of Study	Level of Course	Mode of Delivery
4th / 8th	BSc/1st Cycle	On Campus

Course Objectives:

This course discusses the WAN technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement virtual private network (VPN) operations in a complex network.

Learning Outcomes

Upon successful completion of this course students should be able to:

• Manage IOS Software licensing and configuration files

• Classify and describe different WAN technologies, virtual private networks (VPNs) and tunneling

• Define, configure, and troubleshoot serial connections, broadband connections, tunneling operations, Network Address Translation (NAT) operations

• Monitor and troubleshoot network operations using syslog, SNMP, and NetFlow

• Recognize and describe network architectures

Teaching Methodology:

Lectures 42 hours

Labs 30 hours

Course Content

IOS Images and Licensing: Managing IOS System Files, IOS Licensing

Hierarchical Network Design: Hierarchical Network Design Overview, Cisco Enterprise Architecture, Evolving Network Architectures

Connecting to the WAN: WAN Technologies Overview, Selecting a WAN Technology

Point-to-Point Connections: Serial Point-to-Point Overview, PPP Operation, Configure PPP, Troubleshoot WAN Connectivity

Frame Relay: Introduction to Frame Relay, Configure Frame Relay, Troubleshoot Connectivity

Network Address Translation for IPv4: NAT Operation, Configuring NAT, Troubleshooting NAT

Broadband Solutions: Teleworking, Comparing Broadband Solutions, Configuring xDSL Connectivity

Securing Site-to-Site Connectivity: VPNs, Site-to-Site GRE Tunnels, Introducing IPsec, Remote Access

Monitoring the Network: Syslog, SNMP, Netflow

Troubleshooting the Network: Troubleshooting with a Systematic Approach, Network Troubleshooting

Assessment Methods:

Final Exams

Labs/Assignment

Mid term

Required Textbooks/Reading:

Title	Author(s)	Publisher	Year
Accessing the WAN, CCNA Exploration companion	Bob Vachon, Rick Graziani,		
Accessing the WAN, CCNA Exploration Labs and Study Guide	John Rullan Antoon		
CCNA Cisco Certified Network Associate Study Guide	Todd Lammle		
CCNA IOS Commands Survival Guide Todd Lammle	Todd Lammle's		