

CERTIFICATE OF COURSE COMPLETION

CCNA 1 NETWORKING BASICS

Ralf Mengel

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Instructor : Kemmies, Joachim

Location : Hannover

Academy Name : NLI Hildesheim /
Multimedia-Berufsschulen Hannover



Instructor's Signature

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During the CCNA 1 Course administered by the undersigned instructor, the student was able to proficiently:

- Define and install the necessary hardware and software required to be able to communicate over a network
- Demonstrate the mathematical skills required to work seamlessly with integer decimal, binary, and hexadecimal numbers and simple binary logic
- Define the structure and technologies of modern computer networks
- Define the meaning and application of "bandwidth" as used in networking
- Compare and contrast network communications using the OSI model and the TCP/IP protocol stack
- Describe the major properties and standards associated with copper and optical media used in networks
- Explain the concepts of transmission and reception of wireless signals used in networks
- Install a simple wireless LAN
- Explain the fundamentals of signal transmission on networking media
- Describe the different topologies and physical issues associated with cabling common LANs
- Describe the physical issues associated with cabling networking equipment to work over a WAN link
- Explain the fundamentals of Ethernet media access
- Explain how collisions are detected
- Explain the concepts associated with auto negotiation on Ethernet systems
- Describe the concepts of switching in an Ethernet network
- Compare and contrast collision and broadcast domains, and explain how networks can be segmented
- Demonstrate familiarity with all aspects of IP addressing
- Describe the association of an IP address with a device interface, and the relationship between physical and logical addressing
- Describe the principles and practice of packet switching within IP networks
- Describe routing concepts, and the different methods and protocols used to achieve them
- Describe how the protocols associated with TCP/IP allow host communication to occur
- Describe the fundamental concepts associated with transport layer protocols, and compare the connectionless approach to transport with the connection-oriented one
- List the major TCP/IP application protocols, and briefly define their features and operation