



**IT, Telecommunication &  
Networking**



**SCANDINAVIAN ACADEMY**  
Training and Development



# Course: Introduction to TCP\_IP and Internet Security

Code	City	hotel	Start	End	price	Hours
683	Copenhagen (Denmark)	Hotel Meeting Room	2024-04-08	2024-04-12	5450 €	25

## Overview

This is an overview of the TCPIP Suite of protocols. It is designed for audiences new to the world of TCP/IP. It is an instructor led presentation course with some computer based practical exercises

## Objectives

- Be introduced to the various protocols that are covered by TCP/IP
- Learn about the development and limitations of Internet Protocol Addressing
- Learn how to plan and configure a TCP/IP based network
- Learn some of the tools used to troubleshoot TCPIP networks

## Course Outline

### Introduction

- History of TCP/IP
- Standards Bodies - The Internet
- TCP/IP Architecture
- The TCP/IP Suite
- Standards Bodies - ISO
- Open System Interconnection
- ISO OSI 7-layer model
- Layered Protocols

### The Internet Protocol

- Internet Protocol
- Internet Protocol Version 4 Addressing
- Internet Protocol Routing
- IPv4 Address Classes
- Classfull IPv4 Address Ranges
- Multicast Addresses
- IPv4 Reserved Addresses
- IPv4 Address Assignment
- IPv4 Private Network Addressing



- Address Exercise
- IP Address Allocation
- Dynamic IP Address Allocation - RARP
- Dynamic IP Address Allocation - BOOTP
- Dynamic IP Address Allocation - DHCP
- Windows DHCP Commands
- The IPv4 Header
- IP Fragmentation
- IP Precedence
- Differentiated Services - DiffServ

### **Address Resolution**

- Protocol Encapsulation with TCP/IP
- Address Resolution Protocol (ARP)
- Default Gateway
- Connecting Hosts

### **IP Address Limitations**

- Limitations of the Classfull System
- Subnet Motivation - IP Addresses
- Subnet Extensions
- Subnetting
- Subnet Mask Application
- Defining Subnetworks
- Subnetworking in Action
- Subnet Granularity
- Subnet Mask Application
- Subnet/Supernet Calculators
- What is IPv6?

### **ICMP**

- Internet Control Message Protocol
- PING
- PING Options
- TraceRoute
- PathPing

### **The Transport Layer**

- TCP Concepts
- Simple Reliability



- TCP Segment
- TCP Port Numbers
- User Datagram Protocol (UDP)
- UDP Segment
- UDP versus TCP

### **IP Routing**

- Routers and Routing
- Static Routing
- Static Routing
- Dynamic Routing
- Dynamic Routing Protocols
- Routing Information Protocol
- RIP Versions
- RIP Responses
- Open Shortest Path First
- An OSPF Network
- OSPF Costs
- Link State Algorithm
- The OSPF Hello Message
- OSPF Convergence

### **NAT & NAT with PAT**

- Introduction
- Overview
- Network Address Translation
- Dynamic NAT with Port Address Translation
- NAT with Port Address Translation

### **The Domain Name System**

- The Domain Name System
- The Domain Name Space
- Windows DNS Configuration
- Testing DNS

### **The Process Layer**

- Processes
- File Transfer Protocol
- Trivial File Transfer Protocol
- Telnet



- Modern Network Management
- Simple Network Management Protocol
- Components of SNMP



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- **Theoretical Lectures:**
  - We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.
- **Scientific Assessment:**
  - We evaluate trainees skills before and after the course to ensure their progress.
- **Brainstorming and Interaction:**
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- **Practical Cases:**
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  - Training programs are held from 10:00 AM to 2:00 PM and include buffet sessions for light meals during lectures.