

## IPv6 Fundamentals (IPV6FUN)

**ID** IPV6FUN **Price** 3,290.— €(excl. tax) **Duration** 4 days

### Who should attend

Administrators, managers, engineers, network architects and network designers.

### Prerequisites

- Network fundamentals background.
- Knowledge of Host Operating Systems.
- Hands-on experience in building, managing and/or troubleshooting IPv4 networks on Cisco devices.

### Course Objectives

This four-day entry-level IPv6 course comprises theoretical and practical technical training and helps the participants to design, implement, configure and maintain IPv6 networks.

We use a dual-stack lab environment, based on IPv4/IPv6 native addresses for an optimal hands-on learning experience. Dual stack offers the students a real internet access via IPv4 or IPv6. The configuration is executed on Cisco devices, Windows and Linux hosts.

### Course Content

- Course Introduction
- IP History and Overview
- IPv6 Header and Extension Header Format
- IPv6 Address Architecture
- IPv6 Supported Platforms
- IPv6 ICMPv6
- IPv6 Applications
- IPv6 Neighbor Discovery Protocol
- IPv6 Migrations Methods
- IPv6 Transition and Address Design
- IPv6 Network Protection
- IPv6 Traffic Filtering
- IPv6 FHRP Protocols
- IPv6 Routing Protocols

### Detailed Course Outline

#### Course Introduction

#### IP History and Overview

- IP Address Assignment
- IPv4 History and Status
- IPv6 History and Status
- IPv6 Features and Benefits

#### IPv6 Header and Extension Header Format

- IPv6 Header Changes
- IPv6 Extension Headers

#### IPv6 Address Architecture

- IPv6 Address Allocation and Assignment
- IPv6 Address Types
- IPv6 Address Text Representation
- IPv6 Address Structure

#### IPv6 Supported Platforms

- IPv6 on Windows OS
- IPv6 on MAC OS
- IPv6 on Linux OS
- IPv6 on Cisco IOS

#### IPv6 ICMPv6

- ICMPv6 Introduction
- ICMPv6 Message Types
- ICMPv6 Path MTU Discovery
- ICMPv6 Multicast Listener Discovery
- ICMPv6 Neighbor Discovery Protocol
- ICMPv6 Recommendations

#### IPv6 Applications

- DHCPv6
- DNS for IPv6

#### IPv6 Neighbor Discovery Protocol

- IPv6 Neighbor Discovery Introduction

- IPv6 Neighbor Discovery (SLAAC)
- IPv6 Neighbor Discovery (DHCPv6)

### **IPv6 Migrations Methods**

- Dual Stack
- Tunneling
- Translation
- DNS64/NAT64

### **IPv6 Transition and Address Design**

- Strategy
- Address Planning and DHCPv6 Implementation

### **IPv6 Network Protection**

- RA Guard
- DHCP Snooping

### **IPv6 Traffic Filtering**

- ACL Rules
- ACL Recommendations

### **IPv6 FHRP Protocols**

- VRRP, GLBP, HSRP
- HSRP Optimisation

### **IPv6 Routing Protocols**

- IPv6 Static/Default Route
- IPv6 enabled Routing Protocols
- IPv6 named OSPFv3
- IPV4/IPv6 Single Area OSPFv3

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