



## **AFRICAN ADVANCED LEVEL TELECOMMUNICATIONS INSTITUTE (AFRALTI)**



### **EMERGING NETWORKING TECHNOLOGIES (IPV6, VOIP, MPLS)**

#### **COURSE CONTEXT AND OVERVIEW**

The information and communications technology landscape is changing fast. Admittedly, new communications and networking technologies are always emerging. Technologies thought to be only experimental and with no clear future are now realities. While we talk of emerging technologies in areas such as Access, Cellular and 802 Wireless, this course looks at emerging IP technologies namely: Ipv6, Voice Over-Internet Protocol (VoIP) and Multi-protocol label switching (MPLS). At the center of these technologies is the Internet, which is constantly changing the way applications are used. Participants will be able to understand how these technologies are revolutionizing the traditional telecommunications field as well as the impact on the current IP communications.

Besides giving the proper conceptual framework for these technologies, case studies, and practical demonstrations are given to assist students have a full grasp of the course.

#### **PREREQUISITES**

Participants should have a good appreciation of basic IP Networking and basic concepts in telecommunications.

#### **OBJECTIVES OF THE WORKSHOP**



The workshop aims to assist participants to gain an in-depth understanding of emerging IP networking technologies and in particular, they will be able to:

- Articulate the new features in Ipv6
- Spearhead transition of Ipv4 systems to Ipv6
- Identify and explain VoIP protocols.
- Describe the routing of a voice signal in an IP network
- Describe the VoIP architectures and network components
- Describe some configuration aspects of a VoIP network using the SIP standard
- Explain what is afforded by MPLS to Service providers and end-users
- Identify the MPLS network components
- Explain the MPLS signaling protocols
- Explain MPLS Qos features
- Describe implementation of MPLS VPNs.

## **CONTENTS**

### **Ipv6**

- Ipv4 and Its Shortcomings
- Ipv6 Header and Addressing
- ICMPv6
- Multicast Listener Discovery, Neighbour Discovery
- Address Autoconfiguration
- Ipv4/Ipv6 Transition /Co-existence
- Configuring IPv6

### **Voice Over IP**

- Integration of Voice over IP and Challenges
- Business Case for VoIP
- Signal Processing
- Addressing Qos
- H.323 Architecture and Network Components
- MGCP and Megaco Protocols
- SIP Architecture and Network Consideration
- SIP Messages, Sessions, Call Flows
- Implementation and Applications

### **Multi-Protocol Label Switching**

- MPLS Concepts



- Business case for MPLS
- MPLS Signaling
- Traffic Engineering – RSVP, CR-LDP
- MPLS VPNs
- MPLS Resiliency
- Configuring MPLS

### **WHO SHOULD ATTEND?**

This workshop targets staff in telecom operators (fixed and mobile), service providers, and regulatory authorities, financial institutions and any other organizations that have implemented, or are intending to implement enterprise level networking solutions.

In particular, it targets:

- Service Provider Engineers
- Service Provider Network Designers
- Network Engineers / Administrators
- IT Managers
- Graduates from Electrical/Electronic Engineering disciplines

### **Practicals**

The course features practicals for technologies such as Ipv6 and MPLS

### **DURATION**

The course shall be conducted for duration of 5 days, 9:00 am – 4:30 pm

### **Fees**

The course fee is 45,000 ksh

**[Register Now!!](#)**

