



MACHAKOS UNIVERSITY



SO 9001:2015 Certified

SCHOOL OF ENGINEERING AND TECHNOLOGY

**DEPARTMENT OF COMPUTING AND INFORMATION
TECHNOLOGY**

**CURRICULUM FOR HCIA-DATACOM PROFESSIONAL
CERTIFICATE**



JUNE 2021

Course Overview

HCIA-Datacom Course aims at preparing individuals for a career in data communications engineering. Students learn how to build simple LANs, perform basic configurations for routers and switches, implement IPv4 and IPv6 addressing schemes, configure routers, switches, and end devices to provide access to local and remote network resources and to enable end-to-end connectivity between remote devices. After successful completion of the course, students are awarded a professional certificate.

The course is also designed to provide online e-learning for distance education through LMS. Lab activities can be completed with Packet Tracer if lab equipment is not available.

General Course Objective

Students are expected to have a basic understanding of small and medium-sized networks and general network technologies, ability to assist the design of small and medium-sized networks, and implement the designs using Huawei routing and switching devices.

Specific Course Objectives

Upon completion of this course students will be able to:

- Explain the network reference model and the entire data communication process.
- Perform basic operations with the VRP system
- Apply IPv4 and IPv6 address schemes and protocols
- Use routing concept or OSPF to build a Layer 3 network.
- Describe basic Ethernet concepts, functions and working principles of Layer 2 switching devices.
- Apply common Ethernet protocols, such as VLAN, Spanning Tree Protocol , link aggregation and stacking.
- Configure ACLs and AAA to provide basic security solutions for the network.
- Configure common services on enterprise networks, such as DHCP, FTP and Telnet.
- Configure small or medium-sized WLAN networks.
- Have general knowledge of basic concepts of enterprise network management.
- Manage traditional networks SDN-based network solutions.
- Build small-scale IPv6 networks.

- Independently construct small-sized campus networks.
- Apply basic concepts of SDN and Python programming automation.

Course Breakdown

- ✓ Data communication network basics
- ✓ Network Reference Model
- ✓ Huawei VRP
- ✓ Routing Protocol
- ✓ Network Layer Protocols and IP Addressing
- ✓ IP Routing Basics
- ✓ OSPF Basics
- ✓ Switching Network
- ✓ Ethernet Switching Basics
- ✓ VLAN Principles and Configuration
- ✓ STP Principles and Configuration
- ✓ Inter-VLAN Communication
- ✓ Eth-Trunk iStack and CSS
- ✓ Access Network
- ✓ ACL Principles and Configuration
- ✓ AAA Principles and Configuration
- ✓ Network Address Translation
- ✓ Network Services and Applications
- ✓ WLAN Overview
- ✓ WAN Technologies
- ✓ Network Management and O&M IPv6 Basics
- ✓ SDN and automation basics Introduction to SDN and NFV
- ✓ Network Programmability and Automation
- ✓ Typical Campus Network Architectures and Practices

Course Facilitation:

This course is delivered by highly skilled and experienced Huawei Certified Instructors who have also attained the HCIA Datacom, HCIP, HCIE, among other related certifications.

Target Audience

- Individuals who want to become Data Communication Engineers
- Individuals who need to acquire the HCIA-Datacom Certification

Prerequisite

- Basic knowledge of IT technologies and computer networks
- Basic skills in computing and computer literacy
- Basic PC operating system navigation skills
- Basic internet usability skills

Course Duration

5 Weeks

HCIA Datacom Exam Details

- Exam Code: H12 - 811
- Duration: 90 mins
- Exam fee: FREE Certification
- Accessibility: Machakos University Huawei ICT Academy and Cloud Computing and Information Security Learning Centre

Cost of Training

- KES 10,000 for Machakos University Students and staff
- KES 20,000 for Non-Machakos University Students and Staff
- USD 500 for International Students
- Payment can be made to any of the branch of the following accounts and indicate that it is for HAINA:
 - Kenya Commercial Bank: Account No.1137145064(Machakos Branch)
 - National Bank of Kenya: Account No. 01020078499400(Machakos Branch)