



PROFESSIONAL SHORT COURSE ON COMPUTER HARDWARE AND NETWORK SUPPORT

(7th – 18th October, 2019 – IAA Main Campus, Arusha)

1.0 INTRODUCTION:

A very large percentage of the work that most IT technicians do entails working with hardware, including installing, upgrading, repairing, configuring, maintaining, optimizing, and troubleshooting computer components. As IT professional, technician's job will include installing, configuring, maintaining, and troubleshooting personal computer operating systems and applications. So, there is a need to understand the various versions, features, components, and technical capabilities of operating systems and applications so that you can provide effective support for all types of system environments. Also, technician need networking and basic security understanding and skills, as in today's computing environment, standalone computing is a rarity.

2.0 COURSE OBJECTIVE:

This course is designed to equip participants with the necessary knowledge, understanding and skills that a technician need in her/his daily job. At the end of the course participants are expected to able to manage and provide PCs hardware, software and networks support in their organization in a best way. The course will also benefit those who are preparing for or intending to do **A+ Certification**.

3.0 INDICATIVE COURSE CONTENTS:

Module 1 – Computer Overview

- Computer Organization and Architecture
- Basic elements and functions of computer hardware.

Module 2 – Motherboards and Buses

- Motherboard Form Factors and Components
- Processor Sockets/Slots and Chipsets
- Motherboard Connectors
- System Bus & Expansion slots
- Motherboard Selection Criteria
- Common Motherboard Problems
- Troubleshooting and Repair of Motherboard Problems

Module 3 – Microprocessor

- Processor Specifications
- Processor Speeds and Markings Versus Motherboard Speed
- Processor Overclocking and Overdrive
- Cache Memory
- Heat and Cooling Problems
- Processor Bugs
- Processor Upgrades
- Processor Troubleshooting Techniques

Module 4 – Memory

- Memory Basics
- Memory Modules
- Conventional (Base) Memory
- Total Installed Memory Versus Total Usable Memory
- Common Memory Problems
- Troubleshooting Memory: Defect Isolation Procedures

Module 5 – BIOS

- BIOS Hardware/Software
- ROM Hardware and Shadowing
- Updating and Upgrading the BIOS
- Backing Up Your BIOS's CMOS Settings
- CMOS Setup Specifications
- BIOS Error Messages
- General BIOS Boot Text Error Messages

Module 6 – Video Hardware

- Video Display Technologies
- Video Adapter Types
- Video RAM
- Upgrading or Replacing Your Video Card
- Common Video Related Problems
- Maintaining Your Video Display Devices

Module 7 - Hard Disk Storage

- Hard Disk Drives Types
- Interfaces, Cables and Connectors
- Capacity, Performance and Reliability
- RAID Arrays
- Disk Partitioning and Formatting
- Common Hard Disk Problems
- Hard Disk Drive Troubleshooting and Repair

Module 8 – Power Supply

- Power Supply Form Factors
- Power Supply Specifications: Loading, Rating and Other Specs
- Motherboard Power Connectors
- Inadequate Cooling and Overloaded Power Supplies
- Power Supply Troubleshooting and Repair;
- Power-Protection Systems and Safety

Module 9 – PC Hardware Diagnostics, Testing, and Maintenance

- PC Diagnostics
- PC Maintenance Tools
- Safety
- Preventive Maintenance
- Troubleshooting Tips and Techniques

Module 10 – Software Installation

- System Software vs. Application Software
- Installing Software
- Common Software Problems
- Troubleshooting and Repairing Software Problem.

Module 11 – Network Theory

- Networking Overview
- Network Standards and the OSI Model
- Network Design Aspects

Module 12 – Network Implementations

- Network Topologies
- Ethernet Networks
- Network Devices
- IPv4 Addressing
- VLANs

Module 14 – Routing

- Enable Static Routing
- Implement Dynamic IP Routing

Module 15 – Network Security Basics

- Introduction to Network Security
 - Vulnerabilities
 - Threats and Attacks
 - Authentication Methods
 - Network Access Controls
 - Install and Configure Firewalls
 - Intrusion Detection and Prevention
 - Educate Users
 - Network Troubleshooting Utilities
 - Common Connectivity Issues
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4.0 TARGET GROUP:

The course is intended for IT Technicians, IT Support Staff, Help Desk Staff Systems Administrators, Network Administrators, Information Systems Auditors, and any other interested parties.

5.0 METHODOLOGY

The course will be achieved through discussions, case studies, and practices/exercises. Participants will receive all course materials in **flash disk**.

6.0 COURSE FEE:

The fee for the course is **TZS 1,500,000/=** (One million five hundred thousand only) to cover for course fee, course materials, tea/coffee, and lunch. It does not include accommodation and transport cost. Payment may be in cash, cheque or TISS paid directly to our **Bank Account No. 014103007130 in the name of Institute of Accountancy Arusha, NBC, Arusha Branch**.

1.0 DATE, DURATION, AND VENUE:

This course will be conducted from **7TH - 18TH October, 2019** at the Institute of Accountancy Arusha, Main Campus – Njiro Hill, Arusha.

8.0 FOR MORE DETAILS, YOU MAY CONTACT THE FOLLOWING:

- **Eng. Nicholas Stanslaus (Course Director)**
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APPLY TO:

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