COURSE OUTLINE

PROGRAMME TITLE	NETWORK OPERATIONS ESSENTIALS: MONITORING, MAINTENANCE & MANAGEMENT
OVERVIEW (brief introduction of the topic)	To equip participants with foundational knowledge and practical skills for managing, troubleshooting, and monitoring enterprise network operations.
LEARNING OUTCOME	After completing the course, participants will be able to: a. Understand core networking concepts and topologies b. Configure and troubleshoot common networking devices c. Monitor network traffic and performance d. Use tools to detect and resolve network issues e. Implement basic security and access control for operational networks
DURATION (days)	Three (3) Days – Face to Face
TARGET PARTICIPANTS (sector/position/level)	Network administrators, system engineers, IT support personnel, and anyone involved in monitoring and managing network infrastructure.
COURSE CONTENT (with subModuls)	Day 1: Network Fundamentals & Topology Management Module 1: Introduction to Networking • OSI Model & TCP/IP Stack • Network devices (switch, router, firewall) • IP addressing and subnetting overview Module 2: Network Topologies and Cabling • LAN, WAN, MAN, VPN, VLANs • Cable types, network layout • Hands-on: Build simple network diagrams Module 3: Switching and Routing Basics • Layer 2 switching concepts • Static vs dynamic routing (RIP, OSPF) • VLAN segmentation and trunking • Hands-on Lab: Configure Switch and Router Basics Day 2: Network Services, Tools, and Configuration Module 4: Network Addressing and Services • DHCP, DNS, NAT • IP addressing plans and troubleshooting

	Module 5: Network Configuration & CLI Practice • Cisco IOS / MikroTik RouterOS overview • CLI commands for interface, routing, NAT • Hands-on: Basic switch/router configuration Module 6: Network Monitoring Tools & Techniques • Ping, Traceroute, ARP, Netstat • SNMP, Syslog, Wireshark basics • Hands-on Lab: Network Monitoring and Analysis Day 3: Network Troubleshooting, Security, and Maintenance Module 7: Troubleshooting Methodologies • Common issues (DNS, DHCP, VLAN, loops) • Troubleshooting model (isolate, diagnose, resolve) Module 8: Network Security Fundamentals • ACLs, firewall rules, segmentation • Port security, DoS basics, VPN • Hands-on: Configure basic security settings Module 9: Network Documentation & Performance Monitoring • Network diagramming, logs, audit trails • NMS tools (PRTG, Zabbix, SolarWinds overview) • Final Lab: Troubleshooting + Performance Audit • Q&A
LEARNING METHODOLOGIES	Interactive Lectures, Hands-On Labs & Demos, Group Activities & Collaboration, Real-World Scenarios & Use Cases, Capstone Project