MikroTik Certified Network Associate (MTCNA)
Training outline

Suggested duration:	4 days of 6.5 hours each.
Objectives:	By the end of this training session, the student will be familiar with RouterOS software and RouterBoard products. He will also be able to configure, manage, do basic troubleshooting of a MikroTik router and provide basic services to clients.
Target Audience:	Network engineers and technicians wanting to deploy and support:

- Corporate networks
- Client CPEs (WISPs and ISPs)

Course prerequisites:	The student must have a good understanding of TCP/IP and subnetting.

The course material is separated in modules, each of which is ended with a laboratory whose goal is to reinforce the material that has been demonstrated.

Title	Objective

Module 1
Introduction
	• About MikroTik
	  • What is RouterOS
	  • What is RouterBoard
	• First time accessing the router
	  • Winbox and MAC-Winbox
	  • Webfig and Quickset
	• RouterOS command line interface (CLI)
	  • Null Modem cable
	  • SSH and Telnet
	  • New terminal in Winbox/Webfig
	• RouterOS CLI principles
	  • <tab>, double <tab>, "?", navigation
	  • command history and its benefits
	• Initial configuration (Internet access)
	  • WAN DHCP-client
	  • LAN IP address and default gateway
	  • Basic Firewall - NAT masquerade
	• Upgrading RouterOS
	  • Package types
	  • Ways of upgrading
	  • RouterBOOT firmware upgrade
	• Manage RouterOS logins
	• Manage RouterOS services
	• Managing configuration backups
	  • Saving and reload backup
	  • Editing export file
	• RouterOS license
	  • Levels
	  • Updating a license
	• Netinstall
	  • Reinstall RouterOS
	  • Reset RouterOS
	• Sources of additional information
	  • http://wiki.mikrotik.com/wiki/Manual:TOC
	  • http://www.tiktube.com/
	  • http://forum.mikrotik.com/
	  • Distributor and consultant support
	  • support@mikrotik.com
	• **Module 1 laboratory**

Module 2 Routing	• Routing overview
	    • Routing concepts
	    • Route flags
	• Static routing
	    • Creating routes
	    • Setting default route
	    • Manage dynamic routes
	    • Implementing static routing on simple network
	• **Module 2 laboratory**

Module 3 Bridging	• Bridging overview
	    • Bridge concepts
	    • Creating bridges
	    • Adding ports to bridges
	• **Module 3 laboratory**

Module 4 Wireless	• 802.11n Concepts
	    • Frequencies (bands, channels, advanced channels) data-rates /HT chains (Tx power, rx sensitivity, country regulations)
	    • Legacy 802.11a/b/g stuff
	• Setup simple wireless link
	    • Access Point configuration
	    • Station configuration
	• MAC-address filtering
	    • Default-authentication
	    • Access-list
	    • Connect-list
	    • Default-forwarding
	• Wireless Security and Encryption
	    • WPA-PSK
	    • WPA2-PSK
	• MikroTik wireless protocols
	    • NV2 (TDMA) configuration
	• Monitoring Tools
	    • Wireless scan
	    • Snooper
	    • Registration table
	• Bridge wireless networks
	    • Station-bridge
	• **Module 4 laboratory**

Module 5 Network Management	- ARP - ARP modes - RouterOS ARP table - DHCP server and client - DHCP client - Server setup - Leases management - DHCP-server network configuration - RouterOS tools - E-mail - Netwatch - Ping, Traceroute - Profiler (CPU load) - Contacting support@mikrotik.com - supout.rif, autosupout.rif and viewer /system logging and debug logs - readable configuration (item comments and names) - network diagrams **Module 5 laboratory**

Module 6 Firewall	- Firewall principles - Connection tracking and states - Structure, chains and actions - Firewall Filter in action - Filter actions - Protecting your router (input) - Protection your customers (forward) - Basic Address-List - Source NAT - Masquerade and src-nat action - Destination NAT - dst-nat and redirect action **Module 6 laboratory**

Module 7
QoS
	• Simple Queue
	    • Target
	    • Destinations
	    • Max-limit and limit-at
	    • Bursting
	• One Simple queue for whole network (PCQ)
	    • pcq-rate configuration
	    • pcq-limit configuration
	• Monitoring
	    • Interface traffic monitor
	    • Torch
	    • Graphs
	    • SNMP
	• **Module 7 laboratory**

Module 8
Tunnels
	• PPP settings
	    • ppp profile
	    • ppp secret
	    • ppp status
	• IP pool
	    • Creating pool
	    • Managing ranges
	    • Assigning to service
	• Secure local network
	    • PPPoE service-name
	    • Create PPPoE server
	    • Point-to-point addresses
	    • Creating PPPoE clients on RouterOS
	• Secure remote networks communication
	    • PPTP client and PPTP server
	    • SSTP client and SSTP server without certificates
	    • Setup routes between networks
	• **Module 8 laboratory**