MikroTik ACADEMY

MTCWE outline

CERTIFIED WIRELESS ENGINEER

Duration:	2 days
Outcomes:	The MikroTik Certified Wireless Engineer (MTCWE) course was designed to make students familiar with backhaul links, bridging (using STP, RSTP), PtP, PtMP, WDS and Mesh with HWMP, and routing protocols. After successfully completing the course, students will be able to identify the correct choice of wireless equipment to implement and troubleshoot complex wireless networks. All Participants who pass the exam will receive an official MikroTik MTCWE certification.
Target Audience:	Network Engineers and technicians wanting to deploy and support MikroTik wireless networks.
Course prerequisites:	A good working knowledge of TCP/IP Basics is required. You must be MikroTik MTCNA Certified (current or expired certificate is fine) to sit this course.

Title	Objective
Wireless Installations	○ Wireless routers ○ RouterBoard Hardware ○ Wireless cards ○ Antenna types
Wireless Standard	○ 802.11 a/b/g/n ○ Bands and channel width ○ Frequencies

Wireless Tools	○ Wireless Tools + LAB
	  ○ Scan
	  ○ Frequency usage
	  ○ Spectral Scan/History
	  ○ Snooper
	  ○ Align
	  ○ Sniffer

Wireless Troubleshooting	○ Troubleshooting wireless clients + LAB
	  ○ Registration table analysis
	  ○ Ack-Timeout/Distance
	  ○ CCQ
	  ○ TX/RX Signal Strength
	  ○ Frames and HW-frames
	  ○ Data-rates

Wireless Advanced Settings	○ Advanced Wireless Tab settings + LAB
	  ○ HW-retries
	  ○ HW-protection
	  ○ Adaptive-noise-immunity
	○ WMM
	○ Country regulation settings
	○ TX-power + LAB
	○ Virtual-AP

802.11n	○ 802.11n wireless protocol + LAB
	  ○ Features
	  ○ Data Rates
	  ○ Channel bonding
	  ○ Frame Aggregation
	  ○ TX-power for N cards
	  ○ Chain settings
	  ○ Wireless link debugging

Wireless Security	○ Wireless Security Measures + LAB
	  ○ Access Management
	  ○ Access-List/Connect-List
	  ○ RADIUS
	  ○ Authentication

Title	Objective
	○ Encryption ○ EAP ○ Management Frame Protection
WDS and MESH	○ Wireless WDS protocol + LAB ○ Dynamic/Static WDS ○ RSTP Bridge ○ Wireless MESH + LAB ○ HWMP+ Mesh
Wireless Bridging	○ Wireless Transparent Bridge + LAB ○ WDS bridging ○ AP/Station-WDS ○ Pseudobridge ○ MPLS/VPLS tunnel
Nstreme Protocol	○ MikroTik Wireless Nstreme Protocol + LAB ○ Features ○ Configuration options ○ Nstreme Dual ○ Troubleshooting
Nv2 Protocol	○ MikroTik Wireless Nv2 Protocol + LAB ○ Features ○ Configuration options ○ Troubleshooting