

**Certified Routing Engineer (MTCRE)** 

Training outline

Duration:	2 days
Outcomes:	By the end of this training session, the student will be able to plan, implement and debug routed MikroTik RouterOS network configurations.
Target audience:	Network engineers and technicians wanting to deploy and support static and/or dynamic routed networks.
Course prerequisites:	MTCNA certificate

Title	Objective
<b>Module 1</b> Static Routing	More specific routes
	• ECMP
Static Roading	How to force gateway over specific interface
	Gateway reachability check and route distance
	Routing mark and route policy
	<ul> <li>Recursive next-hop and scope/target-scope usage</li> </ul>
	Module 1 laboratory
Madula 2	Point to Point address configuration
<b>Module 2</b> Point to Point Addressing	Module 2 laboratory
Module 3 VPN	What is VPN?
	Different types of VPN
VEN	Site to site connectivity with tunnels
	<ul> <li>IPIP, EoIP, PPTP, SSTP, L2TP, PPPoE</li> </ul>
	VLAN and it's usage
	QinQ implementation
	VLAN and managed switch
	VLAN and switch chip configuration on RouterBOARDs
	Module 3 laboratory
Module 4	What is OSPF?
	How OSPF protocol works
OSPF	Hello protocol
	<ul> <li>Database distribution and LSA types explained</li> </ul>
	OSPF network structure
	• Areas
	Router types
	OSPF neighbors and neighbor states (DR and BDR election)
	External Route Distribution methods (type1, type2)
	Interface cost and interface types (broadcast, NBMA, etc.)
	SPT calculation algorithm
	OSPF and multicast (problems with NBMA)
	Stub, NSSA and area ranges (route aggregation)
	Virtual links, usage and limitations
	OSPF routing filters and limitations
	Module 4 laboratory