

Title	Objective
<b>Module 1</b> Introduction	<ul style="list-style-type: none"> <li>• <b>About MikroTik</b> <ul style="list-style-type: none"> <li>• What is RouterOS</li> <li>• What is RouterBOARD</li> </ul> </li> <li>• <b>First time accessing the router</b> <ul style="list-style-type: none"> <li>• WinBox and MAC-WinBox</li> <li>• WebFig and Quick Set</li> <li>• Default configuration</li> </ul> </li> <li>• <b>RouterOS command line interface (CLI)</b> <ul style="list-style-type: none"> <li>• Null Modem cable</li> <li>• SSH and Telnet</li> <li>• New terminal in WinBox/WebFig</li> </ul> </li> <li>• <b>RouterOS CLI principles</b> <ul style="list-style-type: none"> <li>• &lt;tab&gt;, double &lt;tab&gt;, “?”, navigation</li> <li>• Command history and its benefits</li> </ul> </li> <li>• <b>Initial configuration (Internet access)</b> <ul style="list-style-type: none"> <li>• WAN DHCP-client</li> <li>• LAN IP address and default gateway</li> <li>• Basic Firewall - NAT masquerade</li> </ul> </li> <li>• <b>Upgrading RouterOS</b> <ul style="list-style-type: none"> <li>• Package types</li> <li>• Ways of upgrading</li> <li>• RouterBOOT firmware upgrade</li> </ul> </li> <li>• <b>Router identity</b></li> <li>• <b>Manage RouterOS logins</b> <ul style="list-style-type: none"> <li>• Web Design Skin</li> </ul> </li> <li>• <b>Manage RouterOS services</b></li> <li>• <b>Managing configuration backups</b> <ul style="list-style-type: none"> <li>• Saving and restoring the backup</li> <li>• Difference between a backup and an export (.rsc) file</li> <li>• Editing an export file</li> <li>• Cloud Backup</li> </ul> </li> <li>• <b>Resetting a RouterOS device</b></li> <li>• <b>Reinstalling a RouterOS device (Netinstall)</b></li> <li>• <b>RouterOS license levels</b></li> <li>• <b>Sources of additional information</b> <ul style="list-style-type: none"> <li>• <a href="http://wiki.mikrotik.com">wiki.mikrotik.com</a></li> <li>• <a href="http://forum.mikrotik.com">forum.mikrotik.com</a></li> <li>• <a href="http://mum.mikrotik.com">mum.mikrotik.com</a></li> <li>• Distributor and consultant support</li> <li>• <a href="mailto:support@mikrotik.com">support@mikrotik.com</a></li> </ul> </li> <li>• <b>Module 1 laboratory</b></li> </ul>
<b>Module 2</b> DHCP	<ul style="list-style-type: none"> <li>• <b>DHCP server and client</b> <ul style="list-style-type: none"> <li>• DHCP client</li> <li>• DHCP server setup</li> <li>• Leases management</li> <li>• DHCP server network configuration</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• DHCP Alert</li> <li>• <b>Address Resolution Protocol (ARP)</b> <ul style="list-style-type: none"> <li>• ARP modes</li> <li>• RouterOS ARP table</li> <li>• Reply Only</li> <li>• Proxy ARP</li> </ul> </li> <li>• <b>Module 2 laboratory</b></li> </ul>
<b>Module 3</b> Bridging	<ul style="list-style-type: none"> <li>• <b>Bridging overview</b> <ul style="list-style-type: none"> <li>• Bridge concepts and settings</li> <li>• Creating bridges</li> <li>• Adding ports to bridges</li> </ul> </li> <li>• <b>Bridge wireless networks</b> <ul style="list-style-type: none"> <li>• Station bridge</li> </ul> </li> <li>• <b>DHCP Snooping</b></li> <li>• <b>Bridging VLAN</b> <ul style="list-style-type: none"> <li>• Tagged</li> <li>• Untagged</li> </ul> </li> <li>• <b>Module 3 laboratory</b></li> </ul>
<b>Module 4</b> Routing	<ul style="list-style-type: none"> <li>• <b>Routing overview</b> <ul style="list-style-type: none"> <li>• Routing concepts</li> <li>• Route flags</li> </ul> </li> <li>• <b>Static routing</b> <ul style="list-style-type: none"> <li>• Creating routes</li> <li>• Setting default route</li> <li>• Managing dynamic routes</li> <li>• Implementing static routing in a simple network</li> </ul> </li> <li>• <b>Routing Protocol</b> <ul style="list-style-type: none"> <li>• Distance Vector</li> <li>• Link State</li> <li>• Hybrid</li> </ul> </li> <li>• <b>Routing Protocol RIP</b></li> <li>• <b>Module 4 laboratory</b></li> </ul>
<b>Module 5</b> Wireless	<ul style="list-style-type: none"> <li>• <b>802.11a/b/g/n/ac Concepts</b> <ul style="list-style-type: none"> <li>• Frequencies (bands, channels) data-rates / chains (tx power, rx sensitivity, country regulations)</li> </ul> </li> <li>• <b>Setup a simple wireless link</b> <ul style="list-style-type: none"> <li>• Access Point configuration</li> <li>• Station configuration</li> </ul> </li> <li>• <b>Wireless Security and Encryption</b> <ul style="list-style-type: none"> <li>• Access List</li> <li>• Connect List</li> <li>• Default Authenticate</li> <li>• Default Forward</li> <li>• WPA-PSK, WPA2-PSK</li> <li>• WPS accept, WPS client</li> </ul> </li> <li>• <b>Monitoring Tools</b> <ul style="list-style-type: none"> <li>• Snooper</li> <li>• Registration table</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• CapsMAN</li> <li>• Module 5 laboratory</li> </ul>
<b>Module 6</b> Firewall	<ul style="list-style-type: none"> <li>• <b>Firewall principles</b> <ul style="list-style-type: none"> <li>• Connection tracking and states</li> <li>• Structure, chains and actions</li> </ul> </li> <li>• <b>Firewall Filter in action</b> <ul style="list-style-type: none"> <li>• Filter actions</li> <li>• Protecting your router (input)</li> <li>• Protection your customers (forward)</li> </ul> </li> <li>• <b>Basic Address-List</b></li> <li>• <b>Source NAT</b> <ul style="list-style-type: none"> <li>• Masquerade and src-nat action</li> </ul> </li> <li>• <b>Destination NAT</b> <ul style="list-style-type: none"> <li>• dst-nat and redirect actions</li> </ul> </li> <li>• <b>Module 6 laboratory</b></li> </ul>
<b>Module 7</b> QoS	<ul style="list-style-type: none"> <li>• <b>Simple Queue</b> <ul style="list-style-type: none"> <li>• Target</li> <li>• Destinations</li> <li>• Max-limit and limit-at</li> <li>• Bursting</li> <li>• Parent</li> <li>• Packet Mark</li> <li>• Priority</li> <li>• Time</li> </ul> </li> <li>• <b>One Simple queue for the whole network (PCQ)</b> <ul style="list-style-type: none"> <li>• pcq-rate configuration</li> <li>• pcq-limit configuration</li> </ul> </li> <li>• <b>Module 7 laboratory</b></li> </ul>
<b>Module 8</b> Tunnels	<ul style="list-style-type: none"> <li>• <b>PPP settings</b> <ul style="list-style-type: none"> <li>• PPP profile</li> <li>• PPP secret</li> <li>• PPP status</li> </ul> </li> <li>• <b>IP pool</b> <ul style="list-style-type: none"> <li>• Creating pool</li> <li>• Managing ranges</li> <li>• Assigning to a service</li> </ul> </li> <li>• <b>Secure local network</b> <ul style="list-style-type: none"> <li>• PPPoE service-name</li> <li>• PPPoE client</li> <li>• PPPoE server</li> </ul> </li> <li>• <b>Point-to-point addresses</b></li> <li>• <b>Secure remote networks communication</b> <ul style="list-style-type: none"> <li>• PPTP client and PPTP server (Quick Set)</li> <li>• SSTP Server / Client</li> <li>• Site to Site VPN</li> <li>• PPTP</li> <li>• L2TP v2/v3</li> <li>• OpenVPN</li> </ul> </li> </ul>

	<ul style="list-style-type: none"><li>• <b>Module 8 laboratory</b></li></ul>
<b>Module 9</b> Interfaces	<ul style="list-style-type: none"><li>• <b>MACVLAN</b></li><li>• <b>VXLAN</b></li><li>• <b>VLAN</b></li><li>• <b>Bonding</b></li><li>• <b>VRRP</b></li></ul>
<b>Module 10</b> Misc	<ul style="list-style-type: none"><li>• <b>RouterOS tools</b><ul style="list-style-type: none"><li>• E-mail</li><li>• Netwatch</li><li>• Ping</li><li>• Traceroute</li><li>• Profiler (CPU load)</li></ul></li><li>• <b>Monitoring</b><ul style="list-style-type: none"><li>• Interface traffic monitor</li><li>• Torch</li><li>• Graphs</li></ul></li><li>• <b>Module 9 laboratory</b></li></ul>