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## **MikroTik Certified Traffic Control Engineer (MTCSE)**

Training outline

<b>Duration:</b>	2 days
<b>Outcomes:</b>	By the end of this training session, the student will be able to manage quality of service for the network by using RouterOS queues, firewall and other features
<b>Target audience:</b>	Network engineers and technicians wanting to control the traffic flow in the network
<b>Course prerequisites:</b>	MTCNA certificate

Title	Objective
<p><b>Module 1</b> Packet Flow Diagram</p>	<ul style="list-style-type: none"> <li>• Why this diagram is necessary?</li> <li>• Full overview of all things covered by the diagram</li> <li>• Simple examples how packet travels through the diagram               <ul style="list-style-type: none"> <li>• Routing</li> <li>• Bridging</li> <li>• Connection to router</li> </ul> </li> <li>• More complex examples of diagram usage</li> <li>• <b>Module 1 laboratory</b></li> </ul>
<p><b>Module 2</b> Firewall Filter, NAT, Mangle</p>	<ul style="list-style-type: none"> <li>• Connection tracking</li> <li>• Filter               <ul style="list-style-type: none"> <li>• Chains (default/custom)</li> <li>• All rule "actions" covered</li> <li>• Most common rule "conditions" covered</li> </ul> </li> <li>• NAT               <ul style="list-style-type: none"> <li>• Chains (default/custom)</li> <li>• All rule "actions" covered</li> <li>• Most common rule "conditions" covered</li> <li>• NAT helpers</li> </ul> </li> <li>• Mangle               <ul style="list-style-type: none"> <li>• Chains (default/custom)</li> <li>• All rule "actions" covered</li> <li>• Most common rule "conditions" covered</li> </ul> </li> <li>• Some complicated rule "conditions" covered ("advanced", "extra" tab)</li> <li>• UPnP</li> <li>• <b>Module 2 laboratory</b></li> </ul>

<p><b>Module 3</b> Quality of Service</p>	<ul style="list-style-type: none"> <li>• HTB             <ul style="list-style-type: none"> <li>• HTB general information</li> <li>• HTB implementation (queue tree)</li> <li>• HTB structure</li> <li>• HTB Dual Limitation</li> <li>• HTB priority</li> </ul> </li> <li>• Burst</li> <li>• Queue types             <ul style="list-style-type: none"> <li>• FIFO</li> <li>• SFQ</li> <li>• RED</li> <li>• PCQ</li> <li>• Queue size</li> </ul> </li> <li>• Simple queues</li> <li>• Simple queue and queue tree interaction</li> <li>• <b>Module 3 laboratory</b></li> </ul>
<p><b>Module 4</b> DNS Client, Cache</p>	<ul style="list-style-type: none"> <li>• Basic configuration</li> <li>• Static DNS Entry</li> <li>• <b>Module 4 laboratory</b></li> </ul>
<p><b>Module 5</b> DHCP Client, Relay, Server</p>	<ul style="list-style-type: none"> <li>• DHCP communication analysis</li> <li>• DHCP client identification/configuration</li> <li>• DHCP server configuration:             <ul style="list-style-type: none"> <li>• DHCP networks</li> <li>• DHCP options (build-in and custom)</li> <li>• IP Pool</li> <li>• Advanced DHCP</li> </ul> </li> <li>• DHCP relay configuration</li> <li>• <b>Module 5 laboratory</b></li> </ul>
<p><b>Module 6</b> Web Proxy</p>	<ul style="list-style-type: none"> <li>• Basic configuration</li> <li>• Proxy rule lists             <ul style="list-style-type: none"> <li>• Access list</li> <li>• Direct Access list</li> <li>• Cache list</li> </ul> </li> <li>• Regular expression</li> <li>• <b>Module 6 laboratory</b></li> </ul>