

ITEM	DETAILS	
1. Title of subject	NETWORK TOPOLOGY & ROUTER CONFIGURATION	
2. Subject code	CSS102	
3. Status of subject	Major	
4. Stage	Year 1	
5. Credit Hour	4	
6. Pre-Requisite	CSS101 Introduction to Networking	
7. Assessment	<b>Coursework : 50%</b> <b>Final Examination : 50%</b>	
8. Semester	Semester 2	
9. Objective of subject	To enable students to: Understand the concept of Network Routing and the use of TCP/IP in LAN and WAN environments. Router Configuration and troubleshooting practical components are emphasized.	
10. Synopsis of subject	Review, WAN and Routers, Router CLI, Router Components, Router Startup and Setup, Router Startup, Router Configuration 1	
11. Details of subject	<b>Contents</b>	<b>Hours</b>
Week 1 and 2	<b>Topic:</b> 1. <b>REVIEW</b> <ul style="list-style-type: none"> <li>• OSI Model, LAN, TCP/IP Addressing</li> <li>• Application and Transport Layers</li> </ul> 2. <b>WAN and Routers</b> <ul style="list-style-type: none"> <li>• WAN, WAN technologies</li> <li>• Router Basics and Function</li> </ul>	8

	<p><b>Learning Outcomes:</b> At the end of the lessons, students will be able to:</p> <ul style="list-style-type: none"> <li>• Understand the different classes of IP addresses.</li> <li>• Explain the WAN connection method.</li> </ul>	
<b>Week 3 and 4</b>	<p><b>3. Router CLI</b></p> <ul style="list-style-type: none"> <li>• Modes of Operation</li> <li>• IOS, Router Commands</li> </ul> <p><b>4. Router Components</b></p> <ul style="list-style-type: none"> <li>• Router Components, Show commands</li> <li>• Network Neighbor Discovery, Basic Router Testing</li> </ul>	8
	<p><b>Learning Outcomes:</b> At the end of the lessons, students will be able to:</p> <ul style="list-style-type: none"> <li>• Understand the elements of the Cisco router user interface.</li> <li>• Understand the enhanced editing features of the CISCO IOS</li> </ul>	
<b>Week 5 and Week 6</b>	<p><b>5. Router Startup and Setup</b></p> <ul style="list-style-type: none"> <li>• Router Boot Sequence, Router Setup</li> </ul> <p><b>6. Router Configuration 1</b></p> <ul style="list-style-type: none"> <li>• Router Configuration Files, Configuration Modes</li> <li>• Configuration Methods</li> </ul>	8
	<p><b>Learning Outcomes:</b> At the end of the lessons, students will be able to :</p> <ul style="list-style-type: none"> <li>• Understand router startup</li> <li>• Understand configuration management commands for Cisco routers and the 1900 series switch.</li> </ul>	
<b>Week 7 and Week 8</b>	<p><b>7. IOS Images</b></p> <ul style="list-style-type: none"> <li>• IOS versions, Bootstrapping Routers</li> <li>• Copying and Restoring IOS Images</li> </ul> <p><b>8. Router Configuration 2</b></p> <ul style="list-style-type: none"> <li>• Configuration of new router</li> <li>• Router Password Recovery</li> </ul>	8
	<p><b>Learning Outcomes:</b> At the end of the lessons, students will be able to:</p> <ul style="list-style-type: none"> <li>• Configure IP on the Cisco router and the 1900 series switch.</li> <li>• Troubleshoot router connectivity problems.</li> </ul>	

<b>Week 9 and Week 10</b>	<b>9. IP address</b> <ul style="list-style-type: none"> <li>• Subnetting</li> <li>• Assign IP address</li> </ul>		
	<b>10. Planning Addressing</b> <ul style="list-style-type: none"> <li>• Network Requirements</li> <li>• IP Datagram Components</li> </ul>		
		<b>Learning Outcomes:</b> At the end of the lessons, students will be able to: <ul style="list-style-type: none"> <li>• Configure and verify IP addresses.</li> <li>• Subdivide an IP network</li> </ul>	
<b>Week 11 and Week 12</b>	<b>11. Routing</b> <ul style="list-style-type: none"> <li>• Routing Basics, Distance Vector Routing</li> <li>• Link State Routing, LAN to LAN and LAN to WAN</li> </ul>		8
	<b>12. Routing Protocols</b> <ul style="list-style-type: none"> <li>• Routing Configuration</li> <li>• Interior and Exterior Routing Protocols, RIP, IGRP</li> </ul>		
		<b>Learning Outcomes:</b> At the end of the lessons, students will be able to: <ul style="list-style-type: none"> <li>• Understand and Configure port address translation.</li> <li>• Differentiate between nonroutable, routed, and routing protocols.</li> </ul>	
<b>Week 13 and Week 14</b>	<b>13. Network Troubleshooting</b> <ul style="list-style-type: none"> <li>• Troubleshooting 5 router network configuration</li> </ul>		8
	<b>14. Revision</b> <ul style="list-style-type: none"> <li>• Theory and Practical</li> </ul>		
		<b>Learning Outcomes:</b> At the end of the lessons, students will be able to: <ul style="list-style-type: none"> <li>• Use Router troubleshooting commands.</li> <li>• Use Switch troubleshooting commands.</li> </ul>	
		<b>Total</b>	56
<b>12. Text</b>	<b>Compulsory</b>	Cisco Network Academy Program, CCNA Semester 1 Course material.	
	<b>Reference</b>	Caudle, K., & Cannon, K. (2004). <i>CCNA Guide to Cisco Networking</i> (3 <sup>rd</sup> ed.). Thomson Course Technology.	