

ITEM	DETAILS	
1. Title of subject	ADVANCED ROUTER CONFIGURATION AND NETWORK MANAGEMENT	
2. Subject code	CSS201	
3. Status of subject	Major	
4. Stage	Year 2	
5. Credit Hour	4	
6. Pre-Requisite	CSS102 Network Topology & Router Configuration	
7. Assessment	<b>Coursework : 50%</b>  <b>Final Examination : 50%</b>	
8. Semester	Semester 1	
9. Objective of subject	To enable students to: Understand advanced network configuration topics, including Virtual LANs, Access Control List, and Routing Protocols to enable the design and configuration of campus-wide networks. Network management issues will also be explored.	
10. Synopsis of subject	Review, Lan switching (1), LAN Switching (2), Virtual LANs, LAN Design (1), LAN Design (2), IGRP (2), Access Control List (1), Access Control List (2), Novell IPX, Network Management (1), Network Management (2)	
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, Layers 1,2,3,4 functions</li> <li>• Routing in the network</li> </ul> 2. <b>LAN Switching (1)</b> <ul style="list-style-type: none"> <li>• LAN limitations, full duplex transmission</li> <li>• Switching, VLANs and Spanning Trees</li> </ul>	8

Week 3 and 4	<p><b>Learning Outcomes:</b> At the end of the lesson, students will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the features and benefits of Fast Ethernet.</li> <li>• Distinguish between cut-through, fragment-free, and store and forward LAN switching.</li> </ul>	8
	<p><b>3. LAN Switching (2)</b></p> <ul style="list-style-type: none"> <li>• Switching, VLANs and Spanning Trees</li> </ul> <p><b>4. Virtual LANs</b></p> <ul style="list-style-type: none"> <li>• Segmentation, VLAN</li> <li>• Benefits of VLAN, VLAN Configuration</li> </ul>	
	<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 purpose of the VLAN trunking protocol.</li> <li>• Understand the operation of the Spanning Tree Protocol and its benefits.</li> </ul>	
Week 5 and Week 6	<p><b>5. LAN Design (1)</b></p> <ul style="list-style-type: none"> <li>• LAN Design goals, Network Design Methodology.</li> <li>• Layer 1 Design</li> </ul> <p><b>6. LAN Design (2)</b></p> <ul style="list-style-type: none"> <li>• Layer 2 Design, Layer 3 Design</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>• Describe various network architecture models.</li> <li>• Understand the function that network management tools perform on a network.</li> </ul>	
Week 7 and Week 8	<p><b>7. IGRP (1)</b></p> <ul style="list-style-type: none"> <li>• Network Layer Basics, Routing</li> </ul> <p><b>8. IGRP (2)</b></p> <ul style="list-style-type: none"> <li>• IP Routing Protocols, IGRP Features</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>• Differentiate between nonroutable, routed, and routing protocols.</li> <li>• Describe, configure, and monitor the interior routing protocols RIP and IGRP.</li> </ul>	

<b>Week 9 and Week 10</b>	<b>9. Access Control List (1)</b> <ul style="list-style-type: none"> <li>ACLs, ACL Configuration, Standard ACLs</li> </ul>		8
	<b>10. Access Control List (2)</b> <ul style="list-style-type: none"> <li>Extended ACL, Named ACLs, Using, Placing and Verifying ACLs.</li> </ul>		
		<b>Learning Outcomes:</b> At the end of the leassons, students will be able to : <ul style="list-style-type: none"> <li>Describes the usage and rules of access lists.</li> <li>Establish standard IP access lists.</li> </ul>	
<b>Week 11 and Week 12</b>	<b>11. Novell IPX</b> <ul style="list-style-type: none"> <li>Routing Configuration</li> <li>Interior and Exterior Routing Protocols, RIP, IGRP</li> </ul>		8
	<b>12. Network Management (1)</b> <ul style="list-style-type: none"> <li>Network Documentation, Security</li> <li>Environmental Troubleshooting</li> </ul>		
		<b>Learning Outcomes:</b> At the end of the leassons, students will be able to : <ul style="list-style-type: none"> <li>Understand the essential Network management task including monitor network availability, improve automation, and monitor response time.</li> <li>Configure and monitor RIP and IGRP.</li> </ul>	
<b>Week 13 and Week 14</b>	<b>13. Network Management (2)</b> <ul style="list-style-type: none"> <li>Network Performance, Server Administration</li> <li>Network Troubleshooting</li> </ul>		8
	<b>14. Revision</b> <ul style="list-style-type: none"> <li>Theory and Practical</li> </ul>		
		<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Able to use various tools and protocols to monitor the network on a local and remote basis.</li> <li>Able to use various applications at a given level of support, with specific requirements in the areas of performance, availability, and security.</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.	