Charotar University of Science and Technology

Devang Patel Institute of Advance Technology and Research

Department of Computer Engineering

Subject: Computer Networks **Semester: 5**

Subject Code: CE 344 **Academic Year: 2020-21**

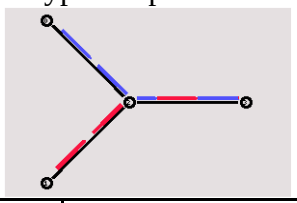
Course Outcomes (COs) :

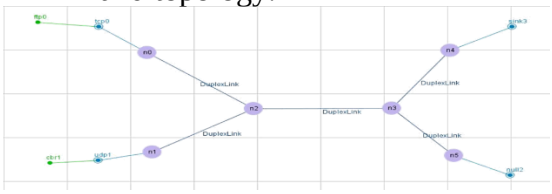
After completion of the course students will be able to:

1. Analyse layered network architecture and passage of data over communication links
2. Analyse delay models in Data Networks using Queueing Systems for messaging and delay sensitive applications
3. Design and analyse routing algorithms for Internet and multi-hop autonomous networks
4. Analyse flow and rate control algorithms between a sender and receiver in wide area networks
5. Apply the network fundamentals to analyse performance
6. Use key networking algorithms in simulation

Practical List

Sr. No.	AIM	Hrs	COs	POs	PEOs
1	Demonstrate the connection between two LAN connections with one router using cisco packet tracer	**2**	**1,6**	**1,2,3,5**	**1,2**
2	Demonstrate the configuration of VLAN (Virtual LAN) using cisco packet tracer	**2**	**1,5,6**	**1,2,3,5**	**1,2**
3	Demonstrate the static routing configuration between 3 routers using cisco packet tracer	**2**	**1,3,5**	**1,2,3,5**	**1,2**
4	Demonstrate the Dynamic routing configuration using RIP and OSPF protocol using cisco packet tracer	**2**	**1,3,5,6**	**1,2,3,5**	**1,2**

<table>
<tr><td>5</td><td>Demonstrate the EIGRP and BGP protocol configuration using cisco packet tracer</td><td>2</td><td>1,3,5,6</td><td>1,2,3,5</td><td>1,2</td></tr>
<tr><td>6</td><td>Demonstrate the static and dynamic configuration of NAT using cisco packet tracer</td><td>2</td><td>2,3,5,6</td><td>1,2,3,5</td><td>1,2</td></tr>
<tr><td>7</td><td>A. Design simple tcl script for Wired topology of 4 nodes in NS-2 and analyze various tcl parameters like network nodes, links, queues and topology. Queue Size :- 5 ,Duplex Link, Queue Type Droptail.
 
<table>
<tr><td>Link</td><td>Bandwidth</td><td>Delay</td></tr>
<tr><td>no-n2</td><td>10Mbps</td><td>10ms</td></tr>
<tr><td>n1-n2</td><td>10Mbps</td><td>10ms</td></tr>
<tr><td>n2-n3</td><td>5Mbps</td><td>10ms</td></tr>
</table>
ftp0:
Packet Size: 1000
Rate: 1
Interval: 150

B. Design simple tcl script for Wired topology of 6 nodes in NS-2 and analyze various tcl parameters like network nodes, links, queues and topology.
 
Set the following parameters for Duplex Link:
<table>
<tr><td>Link</td><td>Bandwidth</td><td>Delay</td><td>Queue Type</td><td>Queue Size</td></tr>
<tr><td>no-n2</td><td>10Mbps</td><td>10ms</td><td>RED</td><td>10</td></tr>
<tr><td>n1-n2</td><td>10Mbps</td><td>10ms</td><td>RED</td><td>10</td></tr>
<tr><td>n2-n3</td><td>5Mbps</td><td>???</td><td>RED</td><td>???</td></tr>
<tr><td>n3-n4</td><td>10Mbps</td><td>10ms</td><td>RED</td><td>10</td></tr>
</table>
</td><td>4</td><td>1,2,4</td><td>1,2,3,5</td><td>1,2</td></tr>
</table>

	n3-n5 | 10Mbps | 10ms | RED | 10 **ftp0:- (Both node with ftp)** Packet Size: 1000 Rate: 1 Interval: 150 **cbr0:- (Both node with cbr)** Packet Size: 1500 Rate: 0.05 Interval: 150 **C.** To demonstrate various queuing mechanisms and make comparative analysis of various queuing techniques. (using trace file) (Droptail, RED,SFQ,FQ,FIFO) **D.** To demonstrate the use of AWK script with NS2 trace file of scenario A. Find Out Throughput, Packet delivery ratio , Number Drop Packets for all Queues.				
8	Create ring and mesh topology in NS2 and learn about the dynamic routing while one link goes down	**2**	**1,2,4**	**1,2,3,5**	**1,2**
9	Design simple tcl script for Wireless topology of 11 mobile nodes in NS-2 and analyze various tcl parameters like network nodes, links, queues and routing	**2**	**1,2,4**	**1,2,3,5**	**1,2**
10	To work with SDN technology and SD WAN	**2**	**1,2,3,4, 5,6**	**5,9,10, 12**	**3,4**

Prepared By:

Ms. Vidhi Pandya **Dr. Amit Nayak**