

## ADVANCED COMPUTER NETWORKS LAB

**Paper Code: ETIT-453**

**Paper: Advanced Computer Network Lab**

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### List of Experiments:

1. Configuration and logging to a CISCO Router and introduction to the basic user Interfaces. Introduction to the basic router configuration and basic commands.
2. Configuration of IP addressing for a given scenario for a given set of topologies.
3. Configure a DHCP Server to serve contiguous IP addresses to a pool of four IP devices with a default gateway and a default DNS address. Integrate the DHCP server with a BOOTP demon to automatically serve Windows and Linux OS Binaries based on client MAC address.
4. Configure, implement and debug the following: Use open source tools for debugging and diagnostics.
  - a. ARP/RARP protocols
  - b. RIP routing protocols
  - c. BGP routing
  - d. OSPF routing protocols
  - e. Static routes (check using netstat)
5. Configure DNS: Make a caching DNS client, and a DNS Proxy; implement reverse DNS and forward DNS, using TCP dump/Wireshark characterise traffic when the DNS server is up and when it is down.
6. Configure FTP Server on a Linux/Windows machine using a FTP client/SFTP client characterise file transfer rate for a cluster of small files 100k each and a video file of 700mb. Use a TFTP client and repeat the experiment.
7. Configure a mail server for IMAP/POP protocols and write a simple SMTP client in C/C++/Java client to send and receive mails.
8. Implement Open NMS+ SNMPD for checking Device status of devices in community MIB of a linux PC. Using yellow pages and NIS/NFS protocols implement Network Attached Storage Controller (NAS).

Extend this to serve a windows client using SMB. Characterise the NAS traffic using wireshark.

**NOTE: At least 8 Experiments out of the list must be done in the semester.**