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**COMPUTER NETWORKS - CSA07**

**COURSE SYLLABUS**

**CSA07 COMPUTER NETWORKS 3 0 2 4**

**Prerequisite: NIL**

**Course Objectives**

**The course on Computer Networks aims to provide the students with the following:**

1. Knowledge on different network topology, mode of network communication and various types of network devices deployed between source and destination systems

2. Understand how seamless communication happens in a MPLS and ATM networks.

3. Create systems under various subnets and route packets between them using appropriate protocols.

4. Efficient management of congestion in a network based on various transport layer protocols, using different service mechanisms and QoS Parameters.

5. Understand and configure application layer protocols such as RTP, RTCP, RSVP, DHCP and DNS for ease of operation of networks.

**Course Outcomes**

**On successful completion of the course, the student will be able to:**

1. Demonstrate the different types of network topology using network devices with appropriate cables.

2. Analyze the operating mechanisms of various data link layer technologies.

3. Demonstrate different routing protocols and IP addressing schemes in heterogeneous networks.

4. Develop and deploy socket based applications using TCP, UDP and improve QoS with Congestion control algorithms.

5. Configure and implement various application layer protocols.

**List of Experiments**

1. Configuration of Network Devices using Packet Tracer (Hub, Switch, Ethernet, Broadcast)

https://www.youtube.com/watch?v=0Eu4nkPwTOw

1. Configuration of Topologies using Packet Tracer (Star, Mesh, Tree) <https://www.youtube.com/watch?v=_eRKAK8Lmtk>
2. Configuration of Topologies using Packet Tracer ( Bus, Ring, Hybrid)

<https://www.youtube.com/watch?v=_eRKAK8Lmtk>

<https://www.youtube.com/watch?v=D2ko0YqElBs>

1. Data Link Layer Traffic Simulation using Packet Tracer Analysis of CSMA/CD & CSMA/CA

[https://www.youtube.com/watch?v=KiUaDqu1LpI](%20https:/www.youtube.com/watch?v=KiUaDqu1LpI)

1. Data Link Layer Traffic Simulation using Packet Tracer Analysis of ARP

<https://www.youtube.com/watch?v=Dn2sQA5QAiw>

<https://www.youtube.com/watch?v=ecjuktZNS9I>

1. Data Link Layer Traffic Simulation using Packet Tracer Analysis of LLDP

<https://www.youtube.com/watch?v=daITjLJZq6Y>

1. Static Routing Analysis using Packet Tracer

<https://www.youtube.com/watch?v=ziDv9esbEG0>

1. Dynamic Routing using Packet Tracer ( Distance Vector Routing)

<https://www.youtube.com/watch?v=N1HxmhkxsCE>

https://www.youtube.com/watch?v=LOqmx4Foyj4

<https://www.youtube.com/watch?v=3SHtTW3EFuc>

1. Dynamic Routing using Packet Tracer ( OSPF)

https://www.youtube.com/watch?v=3SHtTW3EFuc

1. Subnetting – Class C Addressing

https://www.youtube.com/watch?v=HsBJG2tIWmk

1. Functionalities of TCP, UDP

<https://www.youtube.com/watch?v=2Ax2k_g-2_E>

<https://www.youtube.com/watch?v=gFRux1w3QLk>

<https://www.youtube.com/watch?v=4Shfga_7dTU>

1. TCP, UDP Exploration Solution

<https://www.youtube.com/watch?v=2Ax2k_g-2_E&t=33s>

1. **Analysis of TCP streaming with filtering**

**https://www.youtube.com/watch?v=gFRux1w3QLk**

**https://www.youtube.com/watch?v=4Shfga\_7dTU**

1. **Network layer protocol analysis with IPV4 and IPV6 statistics**

https://www.youtube.com/watch?v=u9PG3uQ9BK0

1. IOT Based Smart Home Using Cisco Packet Tracer

<https://www.youtube.com/watch?v=DImMM-AgiQ4>

https://www.youtube.com/watch?v=vjPWanGskek

1. Smart Garden in Cisco Packet Tracer

https://www.youtube.com/watch?v=DdeXrsMFnq4

1. IOT Devices in Networking Using Cisco Packet Tracer

https://www.youtube.com/watch?v=awX\_e4FcVDk

1. Simulating X, Y, Z Company Network Design

https://www.youtube.com/watch?v=kqoSYlqEu64

1. Make Computer Lab in Cisco Packet Tracer

https://www.youtube.com/watch?v=UFy0icmOI0k

1. Simulate a Multimedia Network

https://www.youtube.com/watch?v=9SCHbgC8tP4

1. AAA Local & Server Based Authentication Configuration in Cisco Packet Tracer

https://www.youtube.com/watch?v=04sYhU32S0k

1. IOT Based Smart Home using WPA Security & Radius Server

https://www.youtube.com/watch?v=uJnveEz8sFI

1. WLAN Using Cisco Packet Tracer

https://www.youtube.com/watch?v=GXbL3p6KHlc

1. Control of Fan, Light, Window & Application of Using Cisco Packet Tracer

<https://www.youtube.com/watch?v=4Ytt1sswVfY>

1. **IOT Based Controller with WPA and Radius Server**

<https://www.youtube.com/watch?v=uJnveEz8sFI>