LESSON- PLAN -2020
School of Computer Engineering
Subject code: IT-3095
Subject Name: Computer Networks Lab

Lab No.	**Coverage**	**Experiments**

1.	1. Review of pointer, structure, structure with in a structure, and pointer to structure concept using C programming Language.
	
	2.What is little endian and big endian. Discuss the significance of endianness in computer network.
		1. Write a C program to swap the content of 2 variables using pointer.
		
		2. Write a C program to assign values to each members of the following structure. Pass the populated structure to a function Using call-by address and print the value of each member of the structure with in that function.
		struct info{
		int roll_no;
		char name[50];
		float CGPA;
		}
		
		3. Write a C program to extract each byte from a given number and store them in separate character variables and print the content of those variables.
		
		4. Write a C Program to enter a number and store the number across the following structure and print the content of each member of the structure. Then aggregate each member of the structure to form the original number and print the same.
		struct pkt{
		char ch1;
		char ch2[2];
		char ch3;
		};
		
		5. Write a C program to check whether the Host machine is in Little Endian or Big Endian. Enter a number, print the content of each byte location and Convert the Endianness of the same i.e. Little to Big Endian and vice-versa.

2. AND 3.	1. Socket Programming Basics. CN-LAB/socket-programming-slides.pdf For video: CN-LAB/socket-programming.mp4	1. Provide the client side and server side program for the connection oriented socket using C to the students keeping blanks in between. These blanks are mostly the API to be called with their respective parameters which is to be filled up by the students. TCP-server.c TCP-client.c

	2. Details of Connection Oriented Socket programming APIs for TCP/IP stack using C.	
4.	1. Demonstrate the packet Analyzer tool i.e. wireshark. (https://www.youtube.com/watch?v=TkCSr30UojM)	1. Run both client and server (connection oriented) with in the same host. 2. Run the client in one host and server in another host. 3. Once the client and server runs fine then capture the packets exchanged between them and analyze them through wireshark.
5.	1. Details of Connection less Socket programming APIs for TCP/IP stack using C.	1. Write the client side and server side program with command line arguments for connection less socket using C where both of them will exchange messages with each other. If any of them will receive the “exit” message from the other end then both of them will close the connection. · Run the client and server with in the same host. · Run the client in one host and the server in another host. · Finally capture and analyze the packets exchanged between them. udp_server.c udp_client.c
6.	1. What is I/O multiplexing and when it is required? Different types of I/O multiplexing. 2. Details of I/O multiplexing using select() API. (IO-multiplexing.ppt)	1. Write the client side and server side of a connection oriented socket where the server will behave as a chart server serving multiple chart clients. When the chart server receives a “logout” message from a particular client then it terminate the respective connection with that client. Select-server.c Select-client.c
7.	1. Simple network design. 2. Router configuration.	1. Design a simple network, assign ip addresses and test the connectivity using Cisco packet tracer simulator tool. (https://www.youtube.com/watch?v=I1_zCdLm2YQ) 2. Design more than one LAN and connect them using routers and test the connectivity. Use Cisco packet tracer simulator tool. (https://www.youtube.com/watch?v=CiX30_JVyYQ)

8.	1. Wireless network	1. Design a wireless LAN and test the connectivity. (https://www.youtube.com/watch?v=Jp0hhYpNSYY) (Different mixed wire and wireless LAN problems can be given for practice.)
9.	1. DHCP, SMTP, DNS server configuration.	1. Design a LAN and attach one DHCP, SMTP and DNS server to it. Configure them and test the functionality. Use Cisco packet tracer simulator tool. DHCP- (https://www.youtube.com/watchv=Oj3nFRphDgw) SMTP- (https://www.youtube.com/watch?v=XPake9gZ0hM) DNS- (https://www.youtube.com/watch?v=JA8t_IEXcHc)
10.	END EXAM.	