Computer Network Lab

Department of Information Technology

Lab Description:

The Computer Networks Lab provides hands-on experience with fundamental networking concepts, protocols, and technologies. Students work with network models, data transmission techniques, routing, and error detection through practical experiments. The lab helps in understanding the working of network devices and protocols using simulation and real-time analysis tools. It enhances problem-solving skills and prepares students for real-world networking scenarios.

Lab Photos:

Available Software:

S.No.	Software Name
1	Windows 11
2	Ms Office
3	Dev C++
4	Java(JDK 24)
5	MySQL 8.0
6	Cisco Packet Tracer
7	Python 3.12
8	Android Studio
9	Google Chrome

Major Euipments Available in Lab:

S.NO.	Equipments Name	Items
1	Computer System	36
2	Keyboard	36
3	Mouse	36
4	LED Smart Panel	Samsung 75"

Labs Conducted in E 108A:

Even Sem: Computer Network Lab

Odd Sem: DBMS Lab (BCS 551)

List of Experiments –Computer Network Lab

Subject code: BCS 653   **Branch: IT**
Subject Name: CN Lab   **Sem:VI**

Course Outcomes	Statement(On completion of this course, students will be able to)
BCS 653.1	Simulate different network topologies.
BCS 653.2	Implement various framing methods & Implement various Error and flow control techniques of Data Link Layer.
BCS 653.3	Implement network routing and addressing techniques & Implement transport and security mechanisms.

As per AKTU Syllabus

Exp. No.	Name of Experiment	As per AKTU Syllabus
1	Implementation of Stop and Wait Protocol and Sliding Window Protocol.	CO1
2	Study of Socket Programming and Client – Server model	CO1
3.	Write a code simulating ARP /RARP protocols.	CO3
4	Write a code simulating PING and TRACEROUTE commands	CO2
5	Create a socket for HTTP for web page upload and download.	CO2
6	Write a program to implement RPC (Remote Procedure Call)	
7	Implementation of Subnetting.	CO2
8	Applications using TCP Sockets like a. Echo client and echo server b. Chat c. File Transfer	CO2
9	Applications using TCP and UDP Sockets like d. DNS e. SNMP f. File Transfer	CO2
10	Study of Network simulator (NS).and Simulation of Congestion Control	CO2

	Algorithms using NS	
11	Perform a case study about the different routing algorithms to select the network path with its optimum and economical during data transfer. i. Link State routing ii. Flooding iii. Distance vector	CO3
12	To learn handling and configuration of networking hardware like RJ-45 connector, CAT-6 cable, crimping tool, etc.	CO2
13	Configuration of router, hub, switch etc. (using real devices or simulators)	CO2
14	Running and using services/commands like ping, traceroute, nslookup, arp, telnet, ftp, etc.	CO2
15	Network packet analysis using tools like Wireshark, tcpdump, etc.	CO3
16	Network simulation using tools like Cisco Packet Tracer, NetSim, OMNeT++, NS2, NS3, etc.	CO3
17	Socket programming using UDP and TCP (e.g., simple DNS, data & time client/server, echo client/server, iterative & concurrent servers)	CO3

Additional Programs (Content Beyond Syllabus):

Exp. No.	Name of Experiment	CO Mapping
18	Router-on-a-Stick Inter-VLAN Routing.	CO2
19	Inter-VLAN Routing using Layer 3 Switches.	CO3

List of Experiments – DBMS Lab

Subject code: BCS 551   **Branch: IT**
Subject Name: DBMS Lab   **Sem:V**

Course Outcomes	Statement(On completion of this course, students will be able to)
BCS 551.1	Understand and Design ER diagram & Relational database using constraints for e.g. company data base, banking data base, library information system, payroll processing system,student information system.
BCS 551.2	Write and execute simple and complex queries using DDL, DML, DCL and TCL
BCS 551.3	Write and execute PL/SQL blocks, procedure functions, packages and triggers, cursors.

As per AKTU Syllabus

Exp. No.	Name of Experiment	As per AKTU Syllabus
1	a. . Introduction to DBMS, RDBMS, DBMS Vs RDBMS b. Introduction to SQL & Types of SQL Statements (**DDL, DML, TCL, DCL**) c. Introduction to various RDBMS software Oracle Installation, Oracle Live	CO1
2	Creating Entity-Relationship Diagram using case tools.	CO1
3.	DDL Commands: CREATE, ALTER, DROP, TRUNCATE, CREATING A TABLE From a Table Using SELECT Command	CO2
4	DML Commands: Managing data using INSERT, DELETE and UPDATE command	CO2
5	Data Constraints at Column Level and Table level: PRIMARY Key, FOREIGN Key, UNIQUE, NOT NULL, CHECK, DEFAULT value concept, Defining and Dropping Constraints using ALTER Table Command Assigning User defined names to constraints Data Constraints at Column Level and Table level	CO2
6	DML Commands: Retrieving database using SELECT command, Order by clause	
7	SQL Functions: Date functions, Conversion functions	CO2
8	SQL Functions: Aggregate functions, Single row functions	CO2
9	Retrieving information from database using Group by and Having clause	CO2
10	Retrieving data using Sub queries Single row, Multiple rows, ANY operator, ALL operator, EXIST, Scalar, Multiple columns, Nested, Correlated	CO2
11	Retrieving data from multiple tables using JOIN EQUI, INNER, SELF, OUTER	CO2
12	PL/SQL Function & Procedure	CO2
13	PL/SQL Cursors & Trigger	CO2
14	Design and Implementation of Library Information System	CO1

Additional Programs (Content Beyond Syllabus):

Exp. No.	Name of Experiment	CO Mapping
15	Retrieving data using **SET operators** UNION, UNION ALL, INTERSECT, MINUS	CO2
16	PL/SQL Exception Handling	CO3