GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc), 6th Semester
Branch: Sowtware Development
Subject Name: Computer Network Security Lab.
Subject Code: 1160206

Type of course: Core

Prerequisite: Data Structure, Operating System

Rationale: To understand the basic concepts of computer network and firm foundation for understanding how data communication occurring using computer network. It is based around the OSI Reference Model which deals with the major issues and related protocol studies in the various layers (Physical, Data Link, Network, Transport, Session, Presentation and Application) of the model. This course provides the student with fundamental knowledge of the various aspects of computer networking and enables students to appreciate recent developments in the area. The subject covers various important topics concern to information security like symmetric and asymmetric cryptography and digital signature.

Teaching and Examination Scheme:

Teaching Scheme			Credit	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA(M)	ESE (V)	PA(I)	
0	0	2	2	0	0	30	20	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Experiments to be covered based on the theory covered in class

Practical List:

Sr. No.	Practical / Hands on Exercise	Hrs.
1	**1.1 Identification of Connectors and Cables:** a. Connectors: BNC, RJ-45, I/O box b. Cables: Co-axial, twisted pair, Optical fibre. **1.2 Identification of various networks components** a. NIC (network interface card) b. Hub, Switch, Router.	2
2	Execution of basic networking Commands: Netstat, IPConfig, IfConfig, Ping, Arp-a, Nbtstat-a, Netdiag, Nslookup, Traceroute, Pathping	2
3	Design Ethernet Cables: Cross Cable, Straight Cable, Rollover Cable.	4
4	4.1 Demonstration to connect two computers with/without connecting device. 4.2 Demonstration of File sharing & Printer sharing.	2
5	5.1 Detailed study of Network and Internet Settings on PC. 5.2 Trouble shooting of networks & Installation of network device drivers.	4
6	6.1 Study of Router Configuration. 6.2 Logging into a router, Editing and Help features and Saving Router configuration. 6.3 Setting the Hostname, Descriptions, IP Address, and Clock Rate on a Router.	4
7	Implement Caesar cipher encryption-decryption.	2
8	Implement Playfair cipher encryption-decryption.	2
9	Implement RSA encryption-decryption algorithm	2
10	Implement a Digital Signature algorithm.	4
	Total	**28**

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With effective
from academic
year 2018-19

Reference Books:
1. Computer Networks, Andrew Tanenbaum, Prentice Hall
2. Data Communications and Networking, Behrouz Forouzan, McGraw Hill
3. Cryptography And Network Security, Principles And Practice, William Stallings, Pearson
4. Cryptography and Network Security Atul Kahate, TMH

Suggested Specification table with Marks (Theory): (For BVOC only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	20	20	0	0	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	Understand basics of Networks and Networking Models	20
CO-2	Understanding of Ethernet Networking and Switching Technologies	20
CO-3	Understand Internet Layer Protocol.	20
CO-4	Understanding of Transport Layer and Transport Layer Security.	20
CO-5	Understanding of concept of Information Security and cryptography.	20

List of Open Source Software/learning website :
Students must refer to following sites to enhance their learning ability.
-Software: cryptool (www.cryptool.org)
-Software: Wireshark (www.wireshark.org)
-Netsim3
-NS2