



## C.U.SHAH UNIVERSITY – Wadhwan City

**FACULTY OF:** -Technology and Engineering (Diploma Engineering)

**DEPARTMENT OF:** -Computer Engineering

**SEMESTER:** - V                      **CODE:** - 2TE05CSE1

**NAME**–Computer Security

### Teaching & Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme				Evaluation Scheme								
		Th	Tu	Pr	Total	Theory				Practical (Marks)				Total
						Sessional Exam		University Exam		Internal		University		
						Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr		
<u>2TE05CSE1</u>	Computer Security	03	--	02	05	30	1.5	70	03	-----	20	30	150	

### Objectives:-

To make the students aware about the security of personal information and credentials while dealing on the internet. This also covers the basic cryptography concepts, techniques and different encryption algorithms.

**Prerequisites:** -Basic knowledge of computer network

### Course Outlines:-

Sr. No.	Course Contents	Hours
1	<b>Introduction to Computer Security</b> Information security and overview, Need of Information security, OSI security architecture, Security attack, Security mechanism, Security services, Model for network security.	06
2	<b>System Security</b> Cryptography, Cryptanalysis, Symmetric cipher model, Substitution techniques (Caesar cipher, Playfair cipher, Hill cipher, Monoalphabetic cipher, Polyalphabetic cipher, Vigenere cipher, Shift cipher), Problems in symmetric cipher.	10
3	<b>Introduction to Security Threats</b> Threats related to security, Virus and types, Worm, Intruders, Dos, DDos, Backdoor, Trapdoor, Sniffing, Spoofing, SQL injection, Man in the middle attack, Phishing attack, Internet Banking, Points to keep in mind while doing online transaction	06
4	<b>Security in Organization</b> Password selection, Piggybacking, Shoulder surfing, Dumpster diving, Introduction to physical security components, Biometrics, Finger print, Signature, Writing Patterns.	04
5	<b>Public Key Infrastructure</b> Basics, Asymmetric encryption Digital Signature, Digital Certificate, Integrity of certificate, Centralized and decentralized infrastructure, Private Key Protection.	04

6	<b>Network Security</b> Firewall and design principles, Kerberos, DMS, Internet and Intranet, IP security, Virtual Private Network, E-mail security.	04
7	<b>Web Security</b> IDS (Intrusion Detection System), Web security threats, SSL (Secure Socket Layer), Web traffic security approaches, secure Electronic Transaction, Web trafficking and steps for dodging.	06

### List of Experiments

- Practice various net commands on DOS
- Configure web browser security settings
- Learn OSI model having security attack, security mechanism and security services
- Write steps for Caesar cipher and solve various examples
- Write steps for Playfair cipher and solve various examples
- Draw diagrams of DOS, backdoor and trapdoor
- Draw diagrams of sniffing, spoofing and man in the middle attack.
- Demonstrate traffic analysis of using Wire-shark tool
- Draw diagram of Intrusion detection system
- Demonstrate SQL injection

### Learning Outcomes:-

- This course should be taught with the intend to develop all the security policies that the students can implement while dealing on the internet. Students will be also aware of all the attacks which may contaminate to any person.

### Books Recommended:-

- Cryptography and network security: **By Pearson publication**, Third Edition.
- Cryptography and network security **By: Forouzen**, TMH.
- Computer security basics, **By:Deborch Russell O'Reilly** publication.

### E- References:-

- <https://www.wireshark.org/download.html> (To download Wire-shark tool)
- [www.securityplusolc.com](http://www.securityplusolc.com)
- [www.snort.org/docs](http://www.snort.org/docs)
- <http://williamstallings.com/Cryptography>
- <http://williamstallings.com/NetworkSecurity>