

 SANKALCHAND PATEL UNIVERSITY ॥ अथातो ज्ञानजिज्ञासा ॥	Faculty of Engineering and Technology Master of Technology (Semester I / First year) In Effect from Academic Year 2023-24
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Branch Name:	CYBER SECURITY
Program Code:	ET207
Course Title:	Data Security and Data Privacy Practical
Course Code:	2ET2070103P
Pre-requisite Course:	Fundamentals, Data privacy attacks, Data linking and profiling, Access control models, Mathematical model for data sharing, Protection models, Medical privacy legislations, Privacy in World Wide web.

Course Objectives:

The main objective of this practical session is that students will get the exposure to various tools and programming methods using in data security.

Teaching and Examination Scheme:

Teaching and Examination Scheme:													
Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								
					Theory (Marks)				Practical (Marks)				Total (Marks)
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
1	-	-	2	2	-	-	-	-	10	25	10	25	50

Course Contents:

Unit	Details	Contact Hours
1	a. Using NMAP for ports monitoring b. Understanding the buffer overflow and format string attacks c. Using open SSL for web server - browser communication d. Write a shell script to crack LINUX login passwords and trace it when breaking is happened.	8
2	a. Implementation of proxy based security protocols in C or C++ with features like confidentiality, integrity and authentication b. Using IP TABLES on Linux and setting the filtering rule. c. Configuring S/MIME for e-mail communication d. Working with Sniffers for monitoring network communication (Ethereal)	8
3	a. Using GNU PGP b. Write a perl script to concatenate ten messages and transmit to remote server a. using arrays b. Without using arrays c. Write a Perl script to secure windows operating systems and web browser by disabling Hardware and software units. d. Write a perl script to implement Mail bombing and trace the hacker	8
4	a. Write a program to implement Caesar Cipher b. Write a program to implement Rail Fence Technique. c. Write a program to implement DES. d. Write a program to implement RSA Digital Signature.	8

Reference Books:

1. Understanding Cryptography: A Textbook for Students and Practitioners: Christofpaar, Jan Pelzl.
2. Live Hacking: The Ultimate Guide to Hacking Techniques & Countermeasures for Ethical Hackers & IT Security Experts Ali Jahangiri

List of Open-Source Software/learning website:

1. http://linuxcommand.org/man_pages/openssl1.html
2. <http://www.openssl.org/docs/apps/openssl.html>
3. <http://www.queen.clara.net/pgp/art3.html>
4. <http://www.ccs.ornl.gov/~hongo/main/resources/contrib/gpg-howto/gpghowto.html>
5. <https://netfiles.uiuc.edu/ehowes/www/gpg/gpg-com-0.htm>
6. <http://www.ethereal.com/docs/user-guide>

Course Outcomes:

At the end of the course, students will be able to:

Course Outcomes	Description	Bloom's Taxonomy Level
CO1	Understand security concepts, security professional roles, and security resources in the context of systems and security development life cycle	Understanding (2)
CO2	Understand the business need for security, threats, attacks, top ten security vulnerabilities, and secure software development	Understanding (2)
CO3	Understand information security policies, standards and practices, the information security blueprint.	Applying (3)
CO4	Ability to understand concepts of network security and cryptographic techniques, Ability to design and analyze cryptographic techniques.	Applying (3)

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4
CLO1	H	M	M		M											
CLO2	H	M			M					L						
CLO3	H	M	M		M											
CLO4	M	M	M		M					L						

H: High, M: Medium, L: Low