



**SILVER OAK UNIVERSITY**  
**School of Technology, Design and Computer Application**  
**Silver Oak College of Computer Application**  
**Department of Computer Application**  
**Master of Science Cyber Security & Digital Forensics**  
**Course Name: Practical-2(Cryptography and Basics of MSF)**  
**Course Code: 1040147106**  
**Semester: 1<sup>st</sup>**

**Prerequisite:** Fundamentals of Cipher. Fundamentals of Public key and Private key. Basics and working of Bitcoins

**Course Objective:** The objective of studying Cryptography is to understand cryptographic principles, algorithms, and techniques for securing information and communications. Similarly, the objective of learning the Basics of MSF is to gain proficiency in Microsoft's operating systems, software development frameworks, and application development tools.

**Teaching Scheme:**

Teaching Scheme				
L	T	P	Contact Hours	Credit
0	0	8	8	4

**List of Experiments:**

**Total Hours: 112**

Sr. No.	Practical Name
1.	Password Cracking Using Hydra, John The Ripper, Crack station, Hashcat.
2.	Implement logic for hill cipher Encryption and Decryption.
3.	Hash Generator Script.
4.	Implement the DES algorithm logic.
5.	Ms17-010 Attack using metasploit framework.
6.	Create/implement Substitution Cipher.
7.	Cryptography, encrypt the text "Hello world" using BlowFish.
8.	Calculate the message digest of a text using the SHA-1 algorithm.
9.	Exploit windows using msfvenom.
10.	Post exploitation on the Windows system.
11	VsFTPD 2.3.4 Exploitation.

12	Generating and Validating Message Authentication Codes (MACs).
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**Course Outcomes:**

Sr. No.	CO-Statement
CO-1	Utilize classical ciphers for encryption, applying cryptographic principles practically.
CO-2	Understand public key cryptography principles demonstrating clear comprehension.
CO-3	Evaluate the role and functionality of blockchain technology in Bitcoin transactions, assessing its effectiveness and implications.
CO-4	Demonstrate mastery in implementing message authentication codes and hash functions
CO-5	Able to design, implement, and maintain secure cryptographic solutions tailored to the specific security needs of industrial systems.

**Major Equipment:**

1. Computer System
2. LAN cable

**Teaching & Learning Methodology: -**

1. Projector and Computer
2. Experiments shall be performed in the laboratory related to course contents

**Books Recommended:**

1. Shema, M. & Adam “Seven deadliest web application attacks” Amsterdam: Syngress Media.
2. Wiley, John & Sons - Stuttard, D. & Pinto, M. “The web application hacker’s handbook: Discovering and exploiting security flaws.”Indianapolis,IN.
3. Sullivan, Bryan “Web Application Security, A Beginner’s Guide.” McGraw- Hill Education

**CO-PO-PSO MATRIX:**

Co.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO-1	2	2	2	1				3	2
CO-2	1	3	2					3	2
CO-3	2	2	1	1			2	2	3
CO-4	1	3		2	1			2	3
CO-5	2	1	2	2	1		1	3	2