



# Bapatla Engineering College:: Bapatla

(Autonomous)

## INTRODUCTION TO CYBER SECURITY IV B.Tech – VII Semester (Code: 14CS701)

|            |   |                |                       |   |    |
|------------|---|----------------|-----------------------|---|----|
| Lectures   | : | 4 Periods/Week | Continuous Evaluation | : | 40 |
| Final Exam | : | 3 hours        | Semester End Exam     | : | 60 |

### UNIT-I

(16 periods)

**Introduction to Cryptography & Network Security:** Introduction, Cryptography, Cryptanalysis, Cryptology, Security goals, Types of Security, Basic Concepts of Security, Types of Keys, **OSI Security Architecture:** Security attacks, Security mechanisms, Security services.

**Classical Encryption Techniques: Substitution Cipher: Mono alphabetic Cipher** (Additive Cipher, Shift Cipher, Caesar Cipher, Multiplicative Cipher, Affine Cipher) **Poly Alphabetic Cipher** (Play fair Cipher). **Transposition Cipher.**

**Installing & Basic Over View:** Installing kali with VM ware player, Updating kali, Installing VM ware Tools for Linux, Installing metasploitable 2, Installing Windows OS.

### UNIT-II

(14 periods)

**Metasploit Tutorial: Introduction to metasploit:** Metasploit overview, Picking an exploit, Setting exploit options, Multiple Target types, Picking a payload, Setting payload options, Running the exploit.

**Meterpreter Shell:** Basic Meterpreter Commands, Core commands, File system Commands, Network Commands, System Commands, Capturing Webcam Video, Screen shots.

**Information Gathering & Mapping:** Recon Tool, Dmitry, netdiscover, nmap, Zenmap, Nessus. **Shodan:** Why scan network with shodan, Filter guide, Filter commands, Combined searches, shodan searches with metasploit,

### UNIT-III

(16 periods)

**Viruses, malware, Trojan, Types of cyber security attacks:** malware, phishing, SQL injection attack(sqlmap.sqlDict), cross-site scripting, denial of service, session hijacking and man-in-the-middle attacks. **Web application hijacking tools-** Burp suite, OWASPZAP.

**Password attacks:** Introduction, online password attacks, cracking HTTP passwords, Cracking simple LM hashes, pass the hash, mimikatz plain text passwords, mimikatz and utilman, keyscan and lockout\_keylogger,

#### **UNIT-IV**

**(14 periods)**

**Web based password cracking Techniques:** Introduction, Authentication Techniques, password cracking: definition, password cracking techniques.

**Hacking Web-Browsers:** Introduction, Firefox security, Internet explorer security, Hacking Internet explorer.

**Troubleshooting and configuring of network devices:** Firewalls-what is firewall, packet, traffic, protocol, port, tool: IPtables (rules), IDS and IPS: what is IDS and IPS, installation procedure for snort, snort rules.

**Reference books:**

1. Cryptography and network security -Behrouz A. Forouzan
2. Basic Security Testing with Kali Linux -Daniel W. Dieterle
3. hacking exposed web applications - JOEL SCAMBRAY MIKE SHEMA