

CYBERSECURITY AND PROGRAMMING WITH CRYPTO API

WEEK	TOPICS
1	Networking Basics: Protocols used for communication, Hub, switch, router, how is data transmitted, How internet works, OSI model.
2	DDoS: Network DoS, Common tools used for DoS, Specific DoS attacks, Land attack, DoS mitigation,
3	Malware and Techniques used by Hackers: Viruses, Trojan Horses, Buffer overflow attacks, Spyware, SQL, Script Injection, Malware Creation, Penetration Testing
4	Virus Scanners, Firewalls, Antispyware, Digital Certificates, SSL/TLS, VPN
5	Case Studies and Basics of forensics: System Logs, OS Utilities , Mobile Forensics: iOS, Windows and Android, Using OWASP Tools
6	Basic Cryptography: Kerckhoff's Principle, CryptoAnalysis of Monoalphabetic substitution cipher, Columnar Transposition Ciphers, One time Pad and Quantum Distribution Keys
7	Symmetric key Cryptography: AES, Dealing with Block Swapping and Replay Attacks, Block Cipher Mode of operation.
8	Asymmetric key Cryptography: Diffie Hellman symmetric key exchange protocol, Modular Arithmetic, Euler Totient Theorem, RSA Asymmetric Crypto Algorithm, RSA with OpenSSL
9	Developing Secure Programs with Crypto API: Using it to encrypt, decrypt, sign and verify. Mini Project: Enhance Website Registration Security. (Ashley Madison Case)