Syllabus

Networking Fundamentals: Understand the basics of TCP/IP, IP addressing, routing, subnets, and common network protocols.

Operating Systems: Gain knowledge about popular operating systems like Windows, Linux, and macOS, including their file systems, services, and vulnerabilities.

Information Gathering: Learn techniques to gather information about a target system, such as DNS enumeration, WHOIS queries, and open-source intelligence (OSINT) techniques.

Scanning and Enumeration: Explore port scanning, banner grabbing, and service enumeration to identify active services on a target network.

Vulnerability Assessment: Understand how to identify and assess vulnerabilities in systems and applications.

Exploitation Techniques: Learn how to exploit security weaknesses in applications and systems, keeping in mind the ethical aspect of using these skills responsibly.

Malware Analysis: Study different types of malware, their behavior, and methods to analyze them.

Social Engineering: Understand social engineering techniques used to manipulate people into divulging sensitive information.

Wireless Network Hacking: Explore the basics of wireless security and how to identify and exploit vulnerabilities in wireless networks.

Web Application Security: Learn about common web application vulnerabilities such as SQL injection, Cross-Site Scripting (XSS), and Cross-Site Request Forgery (CSRF).

Penetration Testing: Practice conducting ethical hacking assessments, including methodologies like reconnaissance, scanning, exploitation, and reporting.

Cryptography: Understand encryption algorithms, cryptographic protocols, and their role in securing data.

Buffer Overflows: Explore how buffer overflows can lead to security breaches and how to prevent them.

Incident Response: Learn how to respond to security incidents, investigate breaches, and mitigate potential damage.

Mobile Application Security: Understand the security challenges associated with mobile apps and how to assess their security.

IoT Security: Study the security risks associated with Internet of Things (IoT) devices and networks.

Cloud Security: Explore security concerns in cloud computing and best practices for securing cloud-based systems.

Security Tools: Familiarize yourself with popular ethical hacking tools like Metasploit, Wireshark, Nmap, Burp Suite, etc.