Ethical Hacking
Certification Training
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About the Program

This Certified Ethical Hacking course will help you clear the EC Council’s CEH v11 certification. It has carefully been designed with help of top Ethical hacker from various major organizations. This CEH certification course will help you master skills sets like system penetration testing, building firewalls, network security and more to become certified Ethical hacker. This Ethical hacking training will help you master methodologies used by the hackers to help you prevent and block security attacks at your organization.

About Intellipaat

Intellipaat is one of the leading online e-learning training providers with more than 600,000 learners across 55+ countries. We are on a mission to democratize education as we believe that everyone has the right to quality education.

Our courses are delivered by subject matter experts from top MNCs, and our world-class pedagogy enables to quickly learn difficult topics in no time. Our 24/7 technical support and career services will help learners jump-start their careers in their dream companies.

Key Features
40 HRS INSTRUCTOR-LED TRAINING

8 HRS SELF-PACED TRAINING

6 Months Access to Cloud Lab

LIFETIME ACCESS

24/7 TECHNICAL SUPPORT

INDUSTRY-RECOGNIZED CERTIFICATION

JOB ASSISTANCE THROUGH 80+ CORPORATE TIE-UPS

FLEXIBLE SCHEDULING
Career Support

SESSIONS WITH INDUSTRY MENTORS
Attend sessions from top industry experts and get guidance on how to boost your career growth

MOCK INTERVIEWS
Mock interviews to make you prepare for cracking interviews by top employers

GUARANTEED INTERVIEWS & JOB SUPPORT
Get interviewed by our 400+ hiring partners

RESUME PREPARATION
Get assistance in creating a world-class resume from our career services team
Why take up this course?

- The United States offers 4,000+ CEH jobs for certified professionals – LinkedIn
- Major companies, like Citibank, Deloitte, Accenture, IBM, Oracle, etc., are mass hiring professionals in Ethical Hacking – Indeed
- The average salary of Ethical Hackers in India is about ₹655k per annum – Glassdoor

Who should take up this course?

- Network Security Officers
- Site Administrators
- IT/IS Auditors
- IT Security Officers
- Technical Support Engineers
- IT/IS Analysts and Specialists
- System Analysts
- Network Specialists
- IT Operations Managers
- Senior System Engineers

Program Curriculum

Ethical Hacking Training Course Content
1. Introduction to Ethical Hacking

- Information Security Overview
  1.1 Internet is Integral Part of Business and Personal Life – What Happens Online in 60 Seconds
  1.2 Essential Terminology
  1.3 Elements of Information Security
  1.4 The Security, Functionality, and Usability Triangle

- Information Security Threats and Attack Vectors
  1.5 Motives, Goals, and Objectives of Information Security Attacks
  1.6 Top Information Security Attack Vectors
  1.7 Information Security Threat Categories
  1.8 Types of Attacks on a System
  1.9 Information Warfare

- Hacking Concepts
  1.10 What is Hacking?
  1.11 Who is a Hacker?
  1.12 Hacker Classes
  1.13 Hacking Phases
    - Reconnaissance
    - Scanning
    - Gaining Access
    - Maintaining Access
    - Clearing Tracks

- Ethical Hacking Concepts
  1.14 What is Ethical Hacking?
  1.15 Why Ethical Hacking is Necessary
  1.16 Scope and Limitations of Ethical Hacking
  1.17 Skills of an Ethical Hacker
• Information Security Controls

1.18 Information Assurance (IA)
1.19 Information Security Management Program
1.20 Enterprise Information Security Architecture (EISA)
1.21 Network Security Zoning
1.22 Defense-in-Depth
1.23 Information Security Policies
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  o Examples of Security Policies
  o Privacy Policies at Workplace
  o Steps to Create and Implement Security Policies
  o HR/Legal Implications of Security Policy Enforcement
1.24 Physical Security
  o Types of Physical Security Control
  o Physical Security Controls
1.25 What is Risk?
  o Risk Management
    o Key Roles and Responsibilities in Risk Management
1.26 Threat Modeling
1.27 Incident Management
  o Incident Management Process
    o Responsibilities of an Incident Response Team
1.28 Security Incident and Event Management (SIEM)
  o SIEM Architecture
1.29 User Behavior Analytics (UBA)
1.30 Network Security Controls
1. Access Control
   - Types of Access Control
   - User Identification, Authentication, Authorization and Accounting

1.31 Identity and Access Management (IAM)
1.32 Data Leakage
   - Data Leakage Threats
   - What is Data Loss Prevention (DLP)?

1.33 Data Backup
1.34 Data Recovery
1.35 Role of AI/ML in Cyber Security

- Penetration Testing Concepts
  1.36 Penetration Testing
  1.37 Why Penetration Testing
  1.38 Comparing Security Audit, Vulnerability Assessment, and Penetration Testing
  1.39 Blue Teaming/Red Teaming
  1.40 Types of Penetration Testing
  1.41 Phases of Penetration Testing
  1.42 Security Testing Methodology

- Information Security Laws and Standards
  1.43 Payment Card Industry Data Security Standard (PCI-DSS)
  1.44 ISO/IEC 27001:2013
  1.45 Health Insurance Portability and Accountability Act (HIPAA)
  1.46 Sarbanes Oxley Act (SOX)
  1.47 The Digital Millennium Copyright Act (DMCA)
  1.48 Federal Information Security Management Act (FISMA)
  1.49 Cyber Law in Different Countries

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2.2 Objectives of Footprinting

- Footprinting through Search Engines

2.3 Footprinting through Search Engines
2.4 Footprint Using Advanced Google Hacking Techniques
2.5 Information Gathering Using Google Advanced Search and Image Search
2.6 Google Hacking Database
2.7 VoIP and VPN Footprinting through Google Hacking Database

- Footprinting through Web Services

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2.9 Finding the Geographical Location of the Target
2.10 People Search on Social Networking Sites and People Search Services
2.11 Gathering Information from LinkedIn
2.12 Gather Information from Financial Services
2.13 Footprinting through Job Sites
2.14 Monitoring Target Using Alerts
2.15 Information Gathering Using Groups, Forums, and Blogs
2.16 Determining the Operating System
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- Footprinting through Social Networking Sites

2.18 Collecting Information through Social Engineering on Social Networking Sites

- Website Footprinting

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2.20 Website Footprinting using Web Spiders
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2.22 Extracting Website Information from https://archive.org
2.23 Extracting Metadata of Public Documents
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2.30 Competitive Intelligence – What Are the Company’s Plans?
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- DNS Footprinting

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10.21 DDoS Attack
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11.32 Session Hijacking Detection Tools
11.33 Approaches Vulnerable to Session Hijacking and their Preventative Solutions
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• Benefits of IPsec
• Modes of IPsec
• IPsec Architecture
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12.1 Intrusion Detection System (IDS)
• How IDS Detects an Intrusion
• General Indications of Intrusions
• Types of Intrusion Detection Systems
• Types of IDS Alerts

12.2 Firewall
• Firewall Architecture
• DeMilitarized Zone (DMZ)
• Types of Firewalls
• Firewall Technologies
• Packet Filtering Firewall
• Circuit-Level Gateway Firewall
• Application-Level Firewall
• Stateful Multilayer Inspection Firewall
• Application Proxy
• Network Address Translation (NAT)
• Virtual Private Network
• Firewall Limitations

12.3 Honeypot

• Types of Honeypots

• IDS, Firewall and Honeypot Solutions

12.4 Intrusion Detection Tool

• Snort

• Snort Rules

• Snort Rules: Rule Actions and IP Protocols

• Snort Rules: The Direction Operator and IP Addresses

• Snort Rules: Port Numbers

• Intrusion Detection Tools: TippingPoint and AlienVault® OSSIM™

• Intrusion Detection Tools

• Intrusion Detection Tools for Mobile

12.5 Firewalls

• ZoneAlarm Free Firewall 2018 and Firewall Analyzer

• Firewalls

• Firewalls for Mobile

12.6 Honeypot Tools

• KFSensor and SPECTER

• Honeypot Tools

• Honeypot Tools for Mobile

• Evading IDS

12.7 IDS Evasion Techniques

• Insertion Attack

• Evasion
• Denial-of-Service Attack (DoS)
• Obfuscating
• False Positive Generation
• Session Splicing
• Unicode Evasion
• Fragmentation Attack
• Overlapping Fragments
• Time-To-Live Attacks
• Invalid RST Packets
• Urgency Flag
• Polymorphic Shellcode
• ASCII Shellcode
• Application-Layer Attacks
• Desynchronization
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• Evading Firewalls

12.8 Firewall Evasion Techniques
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• IP Address Spoofing
• Source Routing
• Tiny Fragments
• Bypass Blocked Sites Using IP Address in Place of URL
• Bypass Blocked Sites Using Anonymous Website Surfing Sites
• Bypass a Firewall Using Proxy Server
• Bypassing Firewall through ICMP Tunneling Method
• Bypassing Firewall through ACK Tunneling Method
• Bypassing Firewall through HTTP Tunneling Method
• Why do I Need HTTP Tunneling
• HTTP Tunneling Tools
• Bypassing Firewall through SSH Tunneling Method
• SSH Tunneling Tool: Bitvise and Secure Pipes
• Bypassing Firewall through External Systems
• Bypassing Firewall through MITM Attack
• Bypassing Firewall through Content
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12.9 IDS/Firewall Evasion Tools
12.10 Packet Fragment Generator Tools
  • Detecting Honeypots

12.11 Detecting Honeypots
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12.13 Honeypot Detection Tool: Send-Safe Honeypot Hunter
  • IDS/Firewall Evasion Countermeasures

12.14 How to Defend Against IDS Evasion
12.15 How to Defend Against Firewall Evasion
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12.16 Firewall/IDS Penetration Testing
  • Firewall Penetration Testing
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13.8 DNS Server Hijacking
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13.13 Website Defacement
13.14 Web Server Misconfiguration
13.15 HTTP Response Splitting Attack
13.16 Web Cache Poisoning Attack
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13.18 Web Server Password Cracking
13.19 Web Application Attacks

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13.20 Information Gathering

- Information Gathering from Robots.txt File

13.21 Web Server Footprinting/Banner Grabbing

- Web Server Footprinting Tools
- Enumerating Web Server Information Using Nmap

13.22 Website Mirroring

- Finding Default Credentials of Web Server
- Finding Default Content of Web Server
- Finding Directory Listings of Web Server
13.23 Vulnerability Scanning
   - Finding Exploitable Vulnerabilities

13.24 Session Hijacking
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   - Metasploit Exploit Module
   - Metasploit Payload and Auxiliary Module
   - Metasploit NOPS Module
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13.29 Place Web Servers in Separate Secure Server Security Segment on Network
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   - Accounts
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13.31 Detecting Web Server Hacking Attempts
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13.39 Web Application Security Scanners
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13.42 Web Server Penetration Testing
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14.5 OWASP Top 10 Application Security Risks – 2017

A1 – Injection Flaws
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  - Command Injection Attacks
  - Command Injection Example
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  - LDAP Injection Attacks

A2 – Broken Authentication

A3 – Sensitive Data Exposure

A4 – XML External Entity (XXE)

A5 – Broken Access Control

A6 – Security Misconfiguration

A7 – Cross-Site Scripting (XSS) Attacks
- Cross-Site Scripting Attack Scenario: Attack via Email
- XSS Attack in Blog Posting
- XSS Attack in Comment Field
- Websites Vulnerable to XSS Attack

A8 – Insecure Deserialization

A9 – Using Components with Known Vulnerabilities

A10 – Insufficient Logging and Monitoring

14.6 Other Web Application Threats

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- Unvalidated Redirects and Forwards
- Watering Hole Attack
- Cross-Site Request Forgery (CSRF) Attack
- Cookie/Session Poisoning
- Web Services Architecture
- Web Services Attack
- Web Services Footprinting Attack
- Web Services XML Poisoning
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- Hacking Methodology

14.7 Web App Hacking Methodology

14.8 Footprint Web Infrastructure

- Server Discovery
• Service Discovery
• Server Identification/Banner Grabbing
• Detecting Web App Firewalls and Proxies on Target Site
• Hidden Content Discovery
• Web Spidering Using Burp Suite
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14.9 Attack Web Servers
14.10 Analyze Web Applications
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• Identify Server-Side Technologies
• Identify Server-Side Functionality
• Map the Attack Surface

14.11 Bypass Client-Side Controls
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14.12 Attack Authentication Mechanism

User Name Enumeration
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• Password Attacks: Password Guessing and Brute-forcing
• Session Attacks: Session ID Prediction/Brute-forcing
• Cookie Exploitation: Cookie Poisoning

14.13 Attack Authorization Schemes
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14.14 Attack Access Controls
14.15 Attack Session Management Mechanism
  • Attacking Session Token Generation Mechanism
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14.16 Perform Injection/Input Validation Attacks
14.17 Attack Application Logic Flaws
14.18 Attack Database Connectivity
  • Connection String Injection
  • Connection String Parameter Pollution (CSPP) Attacks
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14.19 Attack Web App Client
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  • Web Service Attacks: SOAP Injection
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14.21 Web Application Hacking Tools

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14.22 Web Application Fuzz Testing
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14.28 Web Application Security Testing Tools
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**Web App Pen Testing**

14.30 Web Application Pen Testing

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- Authentication Testing
- Session Management Testing
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- Denial-of-Service Testing
- Web Services Testing
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14.31 Web Application Pen Testing Framework

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15.8 Example of a Web Application Vulnerable to SQL Injection: Attack Analysis
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15.10 Types of SQL injection
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- Error Based SQL Injection
- Union SQL Injection
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- No Error Messages Returned
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- Blind SQL Injection: Boolean Exploitation and Heavy Query
- Out-of-Band SQL injection
- SQL Injection Methodology

15.11 SQL Injection Methodology
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- Information Gathering
- Identifying Data Entry Paths
- Extracting Information through Error Messages
- Testing for SQL Injection
- Additional Methods to Detect SQL Injection
- SQL Injection Black Box Pen Testing
- Source Code Review to Detect SQL Injection Vulnerabilities
- Testing for Blind SQL Injection Vulnerability in MySQL and MSSQL
- Launch SQL Injection Attacks
- Perform Union SQL Injection
- Perform Error Based SQL Injection
- Perform Error Based SQL Injection using Stored Procedure Injection
- Bypass Website Logins Using SQL Injection
- Perform Blind SQL Injection – Exploitation (MySQL)
- Blind SQL Injection – Extract Database User
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- Blind SQL Injection – Extract Data from ROWS
- Perform Double Blind SQL Injection – Classical Exploitation (MySQL)
- Perform Blind SQL Injection Using Out of Band Exploitation Technique
- Exploiting Second-Order SQL Injection
- Bypass Firewall using SQL Injection
- Perform SQL Injection to Insert a New User and Update Password
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- Advanced Enumeration
- Features of Different DBMSs
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- Password Grabbing
- Grabbing SQL Server Hashes
- Extracting SQL Hashes (In a Single Statement
- Transfer Database to Attacker’s Machine
- Interacting with the Operating System
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- Network Reconnaissance Using SQL Injection
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- PL/SQL Exploitation
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15.12 SQL Injection Tools

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15.13 SQL Injection Tools

15.14 SQL Injection Tools for Mobile

• Evasion Techniques

15.15 Evading IDS

15.16 Types of Signature Evasion Techniques

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• String Concatenation

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• Case Variation

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15.17 How to Defend Against SQL Injection Attacks

• Use Type-Safe SQL Parameters
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- IBM Security AppScan and Acunetix Web Vulnerability Scanner
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15.19 SQL Injection Detection Tools

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16.9 WEP vs. WPA vs. WPA2
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16.12 Wireless Threats
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- Client Mis-association
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- AP MAC Spoofing
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- Key Reinstallation Attack (KRACK)
- Jamming Signal Attack
- Wi-Fi Jamming Devices
- Wireless Hacking Methodology

16.13 Wireless Hacking Methodology

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- Footprint the Wireless Network
- Find Wi-Fi Networks in Range to Attack
- Wi-Fi Discovery Tools
- Mobile-based Wi-Fi Discovery Tools
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- How to Discover Wi-Fi Network Using Wardriving
- Wireless Traffic Analysis
- Choosing the Right Wi-Fi Card
- Wi-Fi USB Dongle: AirPcap
- Wi-Fi Packet Sniffer
- Perform Spectrum Analysis
- Launch Wireless Attacks
- Aircrack-ng Suite
• How to Reveal Hidden SSIDs
• Fragmentation Attack
• How to Launch MAC Spoofing Attack
• Denial-of-Service: Disassociation and Deauthentication Attacks
• Man-in-the-Middle Attack
• MITM Attack Using Aircrack-ng
• Wireless ARP Poisoning Attack
• Rogue Access Points
• Evil Twin
• How to Set Up a Fake Hotspot (Evil Twin)
• Crack Wi-Fi Encryption
• How to Break WEP Encryption
• How to Crack WEP Using Aircrack-ng
• How to Break WPA/WPA2 Encryption
• How to Crack WPA-PSK Using Aircrack-ng
• WEP Cracking and WPA Brute Forcing Using Cain & Abel

Wireless Hacking Tools

16.14 WEP/WPA Cracking Tools
16.15 WEP/WPA Cracking Tool for Mobile
16.16 Wi-Fi Sniffer
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16.30 Wireless Intrusion Prevention Systems
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16.36 Bluetooth Security Tools
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16.38 Wireless Penetration Testing
16.39 Wireless Penetration Testing Framework

- Pen Testing for General Wi-Fi Network Attack
- Pen Testing WEP Encrypted WLAN
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17. **Hacking Mobile Platforms**

**Mobile Platform Attack Vectors**
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17.2 OWASP Top 10 Mobile Risks – 2016
17.3 Anatomy of a Mobile Attack
17.4 How a Hacker can Profit from Mobile when Successfully Compromised
17.5 Mobile Attack Vectors and Mobile Platform Vulnerabilities
17.6 Security Issues Arising from App Stores
17.7 App Sandboxing Issues
17.8 Mobile Spam
17.9 SMS Phishing Attack (SMiShing) (Targeted Attack Scan)

**SMS Phishing Attack Examples**

17.10 Pairing Mobile Devices on Open Bluetooth and Wi-Fi Connections

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17.11 Android OS

**Android Device Administration API**

17.12 Android Rooting

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- Android Rooting Tools

17.13 Blocking Wi-Fi Access using NetCut
17.14 Hacking with zANTI
17.15 Hacking Networks Using Network Spoofer
17.16 Launching DoS Attack using Low Orbit Ion Cannon (LOIC)
17.17 Performing Session Hijacking Using DroidSheep
17.18 Hacking with Orbot Proxy
17.19 Android-based Sniffers
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17.21 Securing Android Devices
17.22 Android Security Tool: Find My Device
17.23 Android Security Tools
17.24 Android Vulnerability Scanner
17.25 Android Device Tracking Tools
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17.26 Apple iOS
17.27 Jailbreaking iOS

- Jailbreaking Techniques
- Jailbreaking of iOS 11.2.1 Using Cydia
- Jailbreaking of iOS 11.2.1 Using Pangu Anzhuang
- Jailbreaking Tools

17.28 iOS Trojans
17.29 Guidelines for Securing iOS Devices
17.30 iOS Device Tracking Tools
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17.32 Mobile Spyware
17.33 Mobile Spyware: mSpy
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17.35 Mobile Device Management (MDM)
17.36 Mobile Device Management Solutions
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17.38 General Guidelines for Mobile Platform Security
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17.43 Android Phone Pen Testing
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17.45 Mobile Pen Testing Toolkit: Hackode

18. IoT Hacking

IoT Concepts

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18.2 How IoT Works
18.3 IoT Architecture
18.4 IoT Application Areas and Devices
18.5 IoT Technologies and Protocols
18.6 IoT Communication Models
18.7 Challenges of IoT
18.8 Threat vs Opportunity

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18.9 IoT Security Problems
18.10 OWASP Top 10 IoT Vulnerabilities and Obstacles
18.11 IoT Attack Surface Areas
18.12 IoT Threats
18.13 Hacking IoT Devices: General Scenario
18.14 IoT Attacks
  - DDoS Attack
  - Exploit HVAC
  - Rolling Code Attack
  - BlueBorne Attack
  - Jamming Attack
  - Hacking Smart Grid / Industrial Devices: Remote Access using Backdoor
  - Other IoT Attacks

18.15 IoT Attacks in Different Sectors
18.16 Case Study: Dyn Attack
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- 18.17 What is IoT Device Hacking?
- 18.18 IoT Hacking Methodology

- Information Gathering Using Shodan
- Information Gathering using MultiPing
- Vulnerability Scanning using Nmap
- Vulnerability Scanning using RIoT Vulnerability Scanner
- Sniffing using Foren6
- Rolling code Attack using RFCrack
- Hacking Zigbee Devices with Attify Zigbee Framework
- BlueBorne Attack Using HackRF One
- Gaining Remote Access using Telnet
- Maintain Access by Exploiting Firmware
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18.19 Information Gathering Tools
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18.21 Vulnerability Scanning Tools
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18.24 General Guidelines for IoT Device Manufacturing Companies
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18.28 IoT Pen Testing

19. Cloud Computing
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19.7 Cloud Computing Threats

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19.14 SQL Injection Attacks
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19.17 Denial-of-Service (DoS) and Distributed Denial-of-Service (DDoS) Attacks
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19.23 Best Practices for Securing Cloud
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20. Cryptography

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20.4 Data Encryption Standard (DES)
20.5 Advanced Encryption Standard (AES)
20.6 RC4, RC5, and RC6 Algorithms
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20.9 Rivest Shamir Adleman (RSA)
20.10 Diffie-Hellman
20.11 Message Digest (One-Way Hash) Functions

- Message Digest Function: MD5
- Secure Hashing Algorithm (SHA)
- RIPEMD – 160
- HMAC
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20.12 MD5 Hash Calculators
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20.14 Cryptography Tools
• Advanced Encryption Package 2017
• BCTextEncoder
• Cryptography Tools

20.15 Cryptography Tools for Mobile

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20.16 Public Key Infrastructure (PKI)
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• Signed Certificate (CA) Vs. Self Signed Certificate
• Email Encryption

20.17 Digital Signature
20.18 Secure Sockets Layer (SSL)
20.19 Transport Layer Security (TLS)
20.20 Cryptography Toolkit
• OpenSSL
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20.22 Disk Encryption
20.23 Disk Encryption Tools
• VeraCrypt
• Symantec Drive Encryption
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20.24 Cryptanalysis Methods
• Linear Cryptanalysis
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20.25 Code Breaking Methodologies

20.26 Cryptography Attacks

- Brute-Force Attack
- Birthday Attack
- Birthday Paradox: Probability
- Meet-in-the-Middle Attack on Digital Signature Schemes
- Side Channel Attack
- Hash Collision Attack
- DUHK Attack
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20.27 Cryptanalysis Tools

20.28 Online MD5 Decryption Tools

- Countermeasures

20.29 How to Defend Against Cryptographic Attacks

Project Work

**Ethical Hacker Projects Covered**

**Threat Detection**

Being a part of your organization’s Ethical Hacking team, you need to detect threats and data breaches through in-depth strategies to predict and protect your company from cybercrimes.

**Cracking Wifi**

You have to use various tools, technologies, and techniques to crack WPA/WPA2 wifi routers.
Certification

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Course Name

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Intellipaat Success Stories

Tushar Patil

Excellent course The manner in which Intellipaat conducted the course was really good. The trainer was extremely knowledgable. The biggest plus point of this course was the support. I was able to ask my concern and they were readily available for assistance. I highly recommend Intellipaat if you are planning to learn any trending technology.
Vishal Pentakota

The best part of this course is the series of hands-on demonstrations that the trainer performed. Not only did he explain each concept theoretically, but also implemented all those concepts practically. Great job. Must go for beginners.

Rinki Dutta

The Cyber Security online training course I completed with Intellipaat was great. The trainer was really helpful in explaining all topics in depth. I was able to understand the topics clearly. The trainer also used real-life examples in order to explain complicated modules and topics. The online sessions were also extremely helpful.
If you have any further queries or just want to have a conversation with us, then do call us.

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