

## Cybersecurity Analyst Fundamentals to Advance

### Week 1: Introduction to Cybersecurity

- **Day 1: Welcome and Course Overview**
  - Course objectives and expectations
  - Importance of cybersecurity in the modern world
- **Day 2: Basics of Computing**
  - Introduction to computers and operating systems
  - File systems and data storage
- **Day 3: Networking Fundamentals**
  - Introduction to networks
  - OSI model and basic network protocols
- **Day 4: Introduction to Cyber Threats**
  - Types of cyber threats
  - Attack vectors and motivations
- **Day 5: Security Policies and Compliance**
  - Data protection laws and regulations
  - Basics of security policies

## Week 2: Information Security Fundamentals

- **Day 1: Information Security Principles**
  - Confidentiality, integrity, and availability
  - Risk assessment and management
- **Day 2: Cryptography Basics**
  - Introduction to encryption
  - Symmetric and asymmetric cryptography
- **Day 3: Password Security**
  - Password best practices
  - Multi-factor authentication
- **Day 4: Security Awareness and Training**
  - Social engineering attacks
  - Security awareness for end-users
- **Day 5: Security Governance and Compliance**
  - ISO 27001 and NIST frameworks
  - Regulatory compliance

## Week 3: Network Security

- **Day 1: Network Security Overview**
  - Network security concepts
  - Firewalls and intrusion detection
- **Day 2: Basic Network Defense**
  - Implementing firewalls
  - Network monitoring
- **Day 3: Wireless Network Security**
  - Wi-Fi security best practices
  - Guest networks and isolation
- **Day 4: Virtual Private Networks (VPNs)**
  - VPN basics
  - Implementing VPNs for secure communication
- **Day 5: Introduction to Linux**
  - Basic Linux commands and navigation
  - Linux security best practices

## Week 4: Operating System Security

- **Day 1: Introduction to Operating Systems**
  - Types of operating systems
  - OS security considerations
- **Day 2: Windows Security**
  - Windows security features
  - Patch management and updates
- **Day 3: Linux Security**
  - Securing a Linux system
  - User management and permissions
- **Day 4: Malware and Antivirus**
  - Understanding malware
  - Antivirus and anti-malware tools
- **Day 5: Security Assessment and Vulnerability Scanning**
  - Introduction to vulnerability scanning
  - Tools for vulnerability assessment

## Week 5: Web Security and Application Security

- **Day 1: Web Security Fundamentals**
  - Web application threats
  - OWASP Top Ten vulnerabilities
- **Day 2: Secure Coding Principles**
  - Principles of secure coding
  - Common coding vulnerabilities
- **Day 3: Web Application Firewalls (WAFs)**
  - Introduction to WAFs
  - Deploying a WAF
- **Day 4: Web Security Testing**
  - Web application penetration testing
  - Tools for web security testing
- **Day 5: Secure Development Lifecycle**
  - Secure software development practices
  - Secure SDLC phases

## Week 6: Cybersecurity Operations

- **Day 1: Incident Response**
  - Incident handling process
  - Cybersecurity incident types
- **Day 2: Intrusion Detection Systems (IDS)**
  - Introduction to IDS
  - Deploying and configuring IDS
- **Day 3: Security Information and Event Management (SIEM)**
  - SIEM fundamentals
  - Log analysis and correlation
- **Day 4: Security Policies and Procedures**
  - Creating security policies
  - Incident response procedures
- **Day 5: Legal and Ethical Aspects of Cybersecurity**
  - Cybersecurity laws and regulations
  - Ethical hacking and responsible disclosure

## Week 7: Advanced Cybersecurity Topics

- **Day 1: Advanced Cryptography**
  - Public key infrastructure (PKI)
  - Cryptographic protocols
- **Day 2: Cloud Security**
  - Cloud computing security
  - AWS, Azure, or Google Cloud security
- **Day 3: IoT Security**
  - Internet of Things (IoT) security challenges
  - Securing IoT devices
- **Day 4: Red Team vs. Blue Team**
  - Introduction to red teaming and blue teaming
  - Capture The Flag (CTF) challenges.
- **Day 5: Career Paths in Cybersecurity**
  - Various career opportunities in cybersecurity
  - Preparing for certifications

## Week 8: Industry Project and Certification Preparation

- **Day 1-4: Industry Project**
  - Students work on a cybersecurity project.
  - Implement security best practices.
  -
- **Day 5: Certification Exam Review**
  - Overview of popular cybersecurity certifications
  - Tips for exam preparation