



Certificate Program in Cyber Security



EY

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working world



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About the course

Cyber security refers to technology, processes and practices which are designed to protect networks, devices, programs and data from attack, damage, or unauthorized access.

The intervention of technology, internet-based computing and connectivity has helped organizations to operate globally. But these factors have made them more vulnerable to hacking and cyber-attacks. It is ultimately the duty of the organization to protect their proprietary data as well as customer information. This has increased the demand of cyber security professionals in the past few years.

There are five types of cyber security, namely:

- ▶ Critical infrastructure security: critical infrastructure security consists of the cyber-physical systems that modern societies rely on.
- ▶ Application security
- ▶ Network security
- ▶ Cloud security
- ▶ Internet-of-Things (IoT) security

It is important for organizations to ensure security of their cyber assets. Cyber security protects the data and integrity of computing assets belonging to or connecting to an organization's network. Its purpose is to defend assets against threat actors throughout the entire lifecycle of a cyber-attack.

This course is designed and structured to provide a deep understanding of cyber security and to help candidates become cyber security professionals.

Who should take this course?

- ▶ Engineering and science graduates/post graduates/freshers
- ▶ Network administrators and networking professionals
- ▶ IT security professionals
- ▶ Cloud warehouse professionals
- ▶ Web developers and programmers
- ▶ IT professionals planning to change their domain in cyber security
- ▶ Mid-level managers

Outcome of the course

Upon successful completion of the program, candidates will be understand cyber security landscapes. They will also be able to:

- ▶ Analyze and evaluate cybersecurity needs of the organizations.
- ▶ Determine and analyze software vulnerabilities and security solutions to reduce the risk of exploitation of cyber assets.

Course deliverables

- ▶ 200 hours of comprehensive curriculum spread across 10 modules
- ▶ Three projects to provide real-time practical exposure.
- ▶ Projects' duration is 30 hours
- ▶ Quizzes and assessment after each module

* Internship opportunity with EY to the deserving candidates subject to EY's discretion.



Detailed course agenda

Basics of Network

▶ OSI Layer and Network Basic Concept and Devices

Objective: to understand what a network is and to learn how communication happens in the digital world

- ▶ Use OSI and TCP/IP models and their associated protocols to explain how data flows in a network
- ▶ Describe the purpose and basic operation of the protocols in OSI and TCP models

▶ TCP/IP (addressing and subnetting)

Home vs. private network

- ▶ Understanding IPv4 addressing
- ▶ Understanding IPv6 addressing
- ▶ Describe the operation and benefits of using private and public IP address
- ▶ Classifying network addressing
- ▶ Calculating subnet masks
- ▶ Computing usable subnetworks and hosts

Security fundamentals

▶ Layers of security

- ▶ Objective: to understand core security principles
- ▶ Confidentiality, integrity, availability, how threat and risk impact principles, principle of least privilege, social engineering, attack surface analysis and threat modelling
- ▶ Understand physical security
- ▶ Site security, computer security, removable devices and drives, access control, mobile device security and keyloggers
- ▶ Understand internet security
- ▶ Browser security settings; secure websites
- ▶ Understand wireless security
- ▶ Advantages and disadvantages of specific security types like keys, service set identifiers (SSIDs) and MAC filters

▶ OS security

Objective: to understand user authentication

- ▶ Multifactor authentication, physical and virtual smart cards, Remote Authentication Dial-In User Service (RADIUS), biometrics, use Run As to perform administrative tasks
- ▶ Understand permissions

- ▶ File system permissions, share permissions, registry, Active Directory, enable or disable inheritance; behavior when moving or copying files within the same disk or on another disk, multiple groups with different permissions, basic permissions and advanced permissions, take ownership, delegation and inheritance

▶ Understand password policies

Password complexity, account lockout, password length, password history, time between password changes, enforce by using Group Policies, common attack methods, password reset procedures, protect domain user account passwords

▶ Understand audit policies

Types of auditing, what can be audited, enable auditing, what to audit for specific purposes, where to save audit information and how to secure audit information

▶ Understand encryption

Encrypting file system (EFS), how EFS-encrypted folders impact moving/copying files, BitLocker (To Go), TPM; software-based encryption, MAIL encryption and signing and other uses, virtual private network (VPN), public key/private key, encryption algorithms, certificate properties, certificate services, PKI/certificate services infrastructure, token devices, and lockdown devices to run only trusted applications

▶ Understand malware

Buffer overflow, viruses, polymorphic viruses, worms, Trojan horses, spyware, ransomware, adware, rootkits, backdoors, zero-day attacks

Vulnerability assessment

▶ VA/PT

- ▶ Introduction to ethical hacking
- ▶ Foot printing and reconnaissance
- ▶ Scanning networks
- ▶ Enumeration
- ▶ Vulnerability analysis
- ▶ System hacking
- ▶ Malware threats
- ▶ Web application security testing and VA/PT
- ▶ VA through tools
- ▶ Kali overview
- ▶ Penetration testing and CTF challenges
- ▶ Auditing, compliance and monitoring



Web Application Security Assessment

- ▶ **WASA**
 - ▶ Denial-of-service
 - ▶ Session hijacking
 - ▶ Hacking web servers
 - ▶ Evading IDS, Firewalls and Honeypots
 - ▶ Hacking web applications
 - ▶ Hacking wireless networks
 - ▶ Hacking mobile platforms
 - ▶ Cryptography
 - ▶ Cloud computing
- ▶ **OWASP top 10**
 - ▶ Injection
 - ▶ Broken authentication
 - ▶ Sensitive data exposure
 - ▶ XML External Entities (XXE)
 - ▶ Broken access control
 - ▶ Security misconfigurations
 - ▶ Cross site scripting (XSS)
 - ▶ Insecure deserialization
 - ▶ Using components with known vulnerabilities
 - ▶ Insufficient logging and monitoring

Cyber Security Standards

- ▶ ISO 27001
- ▶ Define a security policy
- ▶ Define the scope of the ISMS
- ▶ Conduct a risk assessment
- ▶ Manage identified risks
- ▶ Select control objectives and controls to be implemented
- ▶ Prepare a statement of applicability
- ▶ **PCI DSS**
 - ▶ PCI DSS pre-assessment: managing the process to limit liability
 - ▶ Goals and requirements
 - ▶ PCI automation: discovering the benefits
 - ▶ Role of automation of resources and tasks
 - ▶ PCI: seven key changes for financial organizations
 - ▶ Best practices
- ▶ **Data privacy**
 - ▶ Introduction to data privacy
 - ▶ Data protection: roles and responsibilities
 - ▶ Common privacy principles
 - ▶ Processing of personal information
 - ▶ Privacy frameworks
 - ▶ Privacy laws in the world

Project 1:

Vulnerability assessment of networks

Duration: 10 days

Project 2:

vulnerability assessment of websites

Duration: 10 days

Project 3:

Assessment of network security policy in sync with the security standard

Duration: 10 days

Assessment and certification

At the end of the program, EY will award "Certificate of Completion" to all participants who have successfully cleared the assessment.

- ▶ Assessment would be based on multiple choice questions.
- ▶ Participants need a minimum score of 50% to pass the exam.



Schedule:

Weekend batch starting from:
Saturday 5th December 2020

Course fee

INR 1,00,000 plus taxes per participant

Contact

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Our other eLearning courses

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In today's testing business environment, with organizational transformation and regulatory change constant features, a flexible and cost-effective workforce is critical. High-quality training is a crucial element of innovative talent management, to improve performance and ensure that your teams can respond to today's challenges and are equipped for career success.

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