Cloud Security Essentials

Course Duration: 40 Hrs. **Course code: C|SE (112-54)**

Course Overview

A Cloud Security Essentials course provides a foundational understanding of cloud computing and security, covering topics like data protection, access control, and cloud-specific security tools and techniques, preparing you to secure cloud environments.

What you'll learn?

- **Cloud Computing Fundamentals:**
  You'll gain an understanding of cloud service models (IaaS, PaaS, SaaS), deployment models (public, private, hybrid), and the benefits and challenges of cloud computing.
- **Cloud Security Concepts:**
  Learn about common cloud security threats, vulnerabilities, and attack vectors, as well as the importance of cloud security policies and procedures.
- **Identity and Access Management (IAM) in the Cloud:**
  Understand how to implement strong authentication, access control, and role-based access control (RBAC) in cloud environments.
- **Data Protection and Encryption:**
  Explore different data encryption methods, data loss prevention (DLP) techniques, and how to secure data at rest and in transit.

Target Audience

- **IT Professionals:**
  This includes system administrators, cloud administrators, cybersecurity operations and administrators, engineers, and architects.

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- **Security Professionals:**
  Individuals with existing security experience who want to specialize in cloud security or expand their knowledge in this area.
- **Career Starters and Switchers:**
  Those new to the IT or cybersecurity fields who are interested in cloud technology and cloud security roles.
- **Students:**
  Individuals pursuing education in IT, cybersecurity, or related fields.

Pre-Requisites

- **Basic Computing:**
  Familiarity with computers, operating systems (like Windows and Linux), and the internet is helpful.
- **Security Fundamentals:**
  Understanding concepts like firewalls, secure development, encryption, and identity and access management (IAM) can be advantageous.
- **Cloud Fundamentals:**
  Some courses suggest a basic understanding of cloud computing concepts, such as virtualization, the shared responsibility model, and key services offered by platforms like AWS, Azure, or Google Cloud.
- **Networking:**
  Understanding basic networking concepts like IP addressing, subnets, firewalls, and DNS can also be helpful.

Course content

Module 1: Cloud Computing and Security Fundamentals

A. Cloud Computing Types and Service Models
B. Cloud Security Challenges and Concerns
C. Cloud and Security Responsibility
D. Evaluating Cloud Service Providers
E. Cloud Security Benefits
F. Threats and Attacks in Cloud Environments

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G. Cloud Security Design Principles
H. Cloud Security Architecture

Module 2: Identity and Access Management (IAM) in the Cloud

A. IAM Fundamentals
B. Principal and Roles of IAM in the Cloud
C. Role-based Access Control (RBAC)
D. Identity Federation
E. Single Sign-on (SSO) and Self-Service Password Reset (SSPR)
F. Multifactor Authentication (MFA)
G. Principle of Least Privilege
H. IAM Auditing and Monitoring

Module 3: Data Protection and Encryption in the Cloud

A. Data Classification and Lifecycle
B. Encryption Techniques (at Rest, in Transit)
C. Customer vs. Cloud Provider Managed Keys
D. Data Loss Prevention (DLP)
E. Backup and Disaster Recovery Strategies

Module 4: Network Security in Cloud

A. Cloud Network Fundamentals
B. Virtual Private Clouds (VPC)
C. Network Isolation and Segmentation
D. Network Access Control Lists (NACLs) and Network Security Groups (NSG)
E. Remote Access and Connections
F. Firewalls and Intrusion Detection

Module 5: Application Security in Cloud

A. Secure Software Development Lifecycle (SDLC) in the Cloud
B. Web Application Firewall (WAF) in Cloud Environments
C. Web Application Security and OWASP Top Ten
D. Security by Design Principles for Cloud Applications

E. Secure Coding Practices
F. API Security and Integration Best Practices
G. Serverless Security Considerations
H. Container Security (Docker, Kubernetes)

Module 6: Cloud Security Monitoring and Incident Response

A. Cloud Logging
B. Cloud Security Monitoring
C. SIEM and SOAR
D. Cloud-native Monitoring Solutions
E. Continuous Cloud Security Monitoring
F. Incident Response and Investigation in the Cloud

Module 7: Cloud Security Risk Assessment and Management

A. Regulatory and Industry Compliance
B. Cloud Security Standards
C. Cloud Security Governance and Risk Management
D. Auditing and Monitoring Cloud Resources
E. Cloud Security Assessment and Penetration Testing

Module 8: Cloud Compliance and Governance

A. This module will discuss the various regulatory and legal standards that you may need to adhere to within your company jurisdiction and how to maintain compliance within the cloud infrastructure.

Exam Preference

Exam Code	112-54
Number Of Questions	75
Length Of Test	120 Minutes

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