

# Secure Design and Architecture Fundamentals for Enterprise Environments

This Secure Systems Design and Architecture training explains the security tools, technologies, and concepts that a network engineer must be familiar with before setting out to design an enterprise network's architecture. From physical to digital, cloud to on-prem, learn the fundamentals of keeping an enterprise secure with this training.

[CBT Nuggets course material](#) →

## WEEK 1

### Security Concepts for the Enterprise

164 min.

Introduction to Security Concepts for the Enterprise	1
Configuration management	5
Data protection	5
Hashing	10
Deception and Disruption	6
SSL/TLS Inspection	4
Site Resiliency	3
API Considerations	4
Quiz and Review	5

### Cloud Computing and Virtualization

Overview	1
Introduction to Cloud Computing and Virtualization	1
Virtualization Overview	7
Cloud Models	4
MSPs and MSSPs	5
Desktop Virtualization	5
Deploy a VM	7
Modifying a VM	8
Containers and Microservices	3
Infrastructure as Code and SDN	4
Quiz and Review	5

### Summarize App Development, Deployment, and Automation

Overview	1
Intro to App Development, Deployment, and Automation	1

Development Environments	8
Separation of Duties	6
Secure Coding Techniques	9
OWASP BWA	8
Automation and Scripting	4
Improving Integrity	3
Review Quiz	6

### **Authentication and Authorization Design Concepts**

Overview	1
Intro to Authentication and Authorization Concepts	1
AAA Overview	6
Authentication Methods	14

## **WEEK 2**

**163 min.**

Biometrics	4
Multifactor Authentication (MFA)	7
Quiz Review	11

### **Cybersecurity Resilience**

Overview	1
Intro to Cybersecurity Resilience	1
Backups Overview	6
Classic Backup Types	6
Snapshots	5
Redundancy	5
RAID	9
High Availability	5

Non-Persistence	3
Diversity	4
Review Quiz	9

### **Security for Embedded and Specialized Systems**

Overview	1
Intro to Security for Embedded & Specialized Systems	1
Embedded Systems	4
SCADA and ICS	5
Internet of Things (IoT)	9
IoT Security Risks	7
Critical Systems	9
System on a Chip (SoC)	3
Embedded System Considerations	7
Quiz and Review	3

### **Physical Security Controls**

Overview	1
Intro to Physical Security Controls	1
Perimeter Physical Security	5
Internal Physical Security	6
Equipment Physical Security	3
Infrastructure Controls	5
Bonus Chat on Physical Security	14

## **WEEK 3**

**164 min.**

Fire suppression	3
Secure Data Destruction	5

Quiz / Review 5

### **Cryptography Fundamentals**

Overview 1  
Intro to Cryptography Fundamentals 1  
Cryptography Overview 8  
Symmetric Encryption 5  
Asymmetric Encryption 7  
Hashing 4  
Key Exchange 6  
Digital Signatures 5  
Hiding Data with Steganography 4  
Crypto Considerations 3  
Quiz & Review 7

### **Secure Network Architecture Services**

Overview 1  
DoS Protection, Load Balancers and Proxies 17  
Intrusion Prevention/Detection Systems 13  
Application Security 5  
NACs and VPNs 7  
Securing DNS and Email 10  
Routers and NAT Gateways 8  
Firewalls, UTMs and NGFWs 12

### **Secure Network Architecture Practices**

Overview 1  
Traffic Monitoring 8  
Security Sensors 15

## **WEEK 4**

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Network Segmentation 15  
Deperimeterization / Zero Trust 3  
Merging Networks 7  
Defense In Depth 4

### **Security Infrastructure Design**

Overview 1  
Software Defined Networking (SDN) 9  
Scalability and Automation 10  
Resiliency In Infrastructure Design 15  
Virtualization and Containerization 17  
CDNs and Caching 7

### **Secure Software Integration**

Overview 1  
Baselines and Templates 8  
APIs and Middleware 13  
Software Assurance 11  
Integrating Enterprise Applications 6  
Application Development Security 10  
Web Application Security 7

### **Data Security Techniques**

Overview 1  
Data Loss Prevention and Detection 6

## **WEEK 5**

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**154 min.**

**155 min.**

Data Classification, Labeling and Tagging	7
Obfuscation and Anonymization of Data	7
Data Lifecycle Management	13
Data Inventory and Mapping	7
Data Integrity Management	13

### **Authentication and Authorization Controls**

Overview	1
Managing Credentials	10
Password Policies	11
Access Control	7
AAA Protocols	13
MFA, OTP and SSO	5
Authenticating Hardware and People	5

### **Cloud and Virtualization Solutions**

Overview	1
Virtualization Technologies	8
Virtualization Strategies	9
Cloud Deployment Models	9
Cloud Computing Characteristics	8
Cloud Provider Limitations	10
Extending On-premise Security Controls	9

## **WEEK 6**

### **Cryptography and PKI**

**97 min.**

Overview	1
The CIA Triad	7
Non-repudiation and Compliance Requirements	10

Cryptography and PKI	7
Hashes and Digital Signatures	10
Cryptography Use Cases	10

### **Enterprise Security and Emerging Technologies**

Overview	1
AI and ML	5
Quantum Computing and Nano Technology	6
Homomorphic Encryption and SMC	8
Blockchain and Distributed Consensus	8
Big Data and Passwordless Authentication	8
Virtual Reality and 3D Printing	7
Deepfakes and Biometric Impersonation	6