BLACKBIRD FOR TRAINING

# Advanced Course in Network Design



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## Introduction

In today's digital era, network design is fundamental to enabling organizations to achieve their strategic objectives securely and efficiently. Whether in business network design, global supply chain network design, or network security design, building robust and scalable architectures is crucial for supporting modern enterprises.

This advanced network design course provides participants with a deep understanding of network design principles, best practices, and emerging technologies such as software-defined networking SDN, network virtualization, and IoT. With a blend of theoretical insights and hands-on exercises, participants will learn how to create innovative, secure, and scalable networks that align with business goals and global network design standards.

Whether you are looking to enhance your expertise in network planning and design, optimize network design in supply chains, or take on design leadership network roles, this course equips you with the essential skills and knowledge to drive transformation in networking infrastructure.

## Course Objectives

- Provide a comprehensive understanding of network design principles, methodologies, and frameworks.
- Develop expertise in network planning and design, focusing on scalability, security, and reliability.
- Explore network design best practices for different environments, including business network design and global supply chain network design.
- Gain proficiency in network security design, including risk assessment, threat modeling, and compliance strategies.
- Learn how to implement advanced network design using cloud computing, SDN, and IoT technologies.
- Enable participants to document basic network design and complex architectures through network diagrams, topology maps, and compliance reports.
- Provide hands-on experience with network design services, simulation tools, and real-world case studies.
- Prepare participants for professional certifications in network design, such as Cisco Certified Design Associate CCDA or Cisco Certified Design Professional CCDP.



# Course Outlines

## Day 1: Introduction to Network Design Principles

- Definition of network design and its role in business and IT infrastructure.
- Overview of network design principles and methodologies.
- Understanding business requirements and aligning them with network planning and design.

## Day 2: Assessing Organizational Requirements

- Techniques for gathering network design services requirements.
- Identifying critical applications and service dependencies.
- Evaluating network capacity, performance, and availability needs.

## Day 3: Analyzing Network Traffic Patterns

- Tools for traffic analysis and predictive modeling.
- Identifying bottlenecks and designing creative design network solutions.
- Optimizing performance for high-demand environments.

## Day 4: Designing Campus and Data Center Networks

- Key considerations for campus network design.
- Traditional vs. cloud-native data center architectures.
- Integrating network virtualization in enterprise environments.

## Day 5: Designing Wide Area Networks WANs

- Principles of global network design for distributed organizations.
- Selecting suitable WAN connectivity options MPLS, SD-WAN, etc..
- Ensuring network security design and Quality of Service QoS in WANs.

## Day 6: Security in Network Design

- Network security design principles and risk assessment methodologies.
- Threat modeling and integration of zero-trust security.
- Implementing security protocols and compliance frameworks.

## Day 7: Network Virtualization and SDN

- What is network design in the context of SDN and cloud networking?
- Benefits and use cases of network virtualization.
- Automating network operations with software-defined networking SDN.



### Day 8: IoT and Emerging Technologies in Network Design

- Internet of Things IoT and its impact on business network design.
- Integrating IoT devices, sensors, and 5G technology into network architectures.
- Future trends in global supply chain network design.

### Day 9: Documentation and Compliance in Network Design

- Creating professional network design documentation.
- Compliance requirements, standards, and regulatory frameworks in network security design.
- Ensuring data privacy in enterprise networks.

### Day 10: Hands-on Lab Exercises and Case Studies

- Practical design exercises using network simulation tools.
- Real-world case studies on business network design and network design in supply chains.
- Troubleshooting advanced network design challenges.

## Why Attend This Course? Wins & Losses!

- A deep understanding of network design principles and industry best practices.
- Hands-on experience in network planning and design, using real-world scenarios and tools.
- Mastery in network security design, risk assessment, and compliance.
- The ability to integrate emerging technologies like SDN, IoT, and network virtualization into business network design.
- Preparation for network design certifications, such as CCDA and CCDP.

## Conclusion

This advanced network design course provides both theoretical knowledge and hands-on expertise, enabling participants to play a crucial role in business network design and infrastructure optimization. The acquired skills will empower professionals to address the demands of modern network environments, ensuring scalable, reliable, and secure network solutions.

Whether you aim to become a network design expert, enhance network design in supply chains, or earn certifications like CCDA or CCDP, this course is your gateway to design leadership network success.

**Enroll now and take the next step in mastering network design!**

