Slide 1: Title and Members

Script:
"Welcome to our Real-World Case Study in Networks and Communications Lab.
This project is brought to you by our team:

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We will walk you through our comprehensive network design and implementation for a hotel management system using Cisco Packet Tracer."

Slide 2: Introduction

Script:
"In this case study, we explored the real-world application of network design by creating a hotel management system.
Using Cisco Packet Tracer, we designed a three-floor network structure tailored to meet operational requirements for various departments.
Our focus was on delivering a secure, efficient, and scalable network infrastructure while ensuring seamless inter-floor communication."

Slide 3: Project Overview and Objective

Script:
"The main goal of this project was to design and implement a functional network for a hotel using Cisco Packet Tracer.
The network spans three floors, with departments strategically placed to streamline operations:

- First Floor: Reception, Store, and Logistics.
- Second Floor: Finance, HR, and Sales/Marketing.
- Third Floor: IT and Administration.

We prioritized security, VLAN segmentation, wireless integration, and efficient inter-floor routing to meet the hotel’s operational needs."

Slide 4: Hotel Management Design (Topology)

Script:
"Our network topology follows a hierarchical model for better scalability and organization.

- **Access Layer:** Switches connect to end devices like PCs, printers, and access points.
- **Distribution Layer:** Routers manage inter-floor communication and VLAN routing.
- **Core Layer:** Point-to-point links connect all routers to ensure robust inter-floor data flow. This design promotes efficiency and security, accommodating both wired and wireless connectivity."

Slide 5: Diagram and Its Components

Script:
"Here is the network diagram showcasing the key components and their interconnections:

- Access Points for wireless connectivity on each floor.
- PCs and printers strategically placed within departments.
- VLAN-segmented switches and routers for secure communication.
- Devices like laptops and smartphones seamlessly integrated through wireless networks. This layout ensures logical separation of traffic while maintaining efficient communication."

Slide 6: IP Addressing Scheme

Script:
"Our IP addressing scheme ensures organized and conflict-free communication:

- Each floor uses distinct VLANs with specific subnets, such as 192.168.8.0/24 for Reception and 192.168.1.0/24 for IT.
- Wireless networks are on separate VLANs with subnets like 192.168.9.0/24 for Floor 1.
- Point-to-point router communication uses 10.10.10.x/30 subnets for simplicity and clarity. This structure minimizes overlap and optimizes performance."

Slide 7: Challenges and Solutions

Script:
"We encountered several challenges during implementation:

- Incorrect VLAN assignments disrupted inter-department communication.
- IP conflicts caused connectivity issues.
- Misconfigured switch ports and wireless APs affected functionality.
  Our solutions involved systematic troubleshooting:
- Reviewing and correcting configurations.
- Conducting extensive testing using ping and traceroute.
- Iteratively refining setups to address cascading issues."

Slide 8: Implementation

Script:
"The implementation phase included:

- VLAN setup and configuration on switches.
- Router setup for inter-floor communication with encapsulation and trunking.
- Wireless network integration with VLANs for seamless mobility.
  Each component was tested and verified to align with the design objectives, ensuring optimal performance."

Slides 9–23: Configuration

Script for Each Configuration Slide:
"On this slide, we show the specific configuration steps for:

- Setting up VLANs and assigning ports.
- Configuring IP addresses for router interfaces.
- Implementing DHCP for dynamic IP allocation.
- Establishing trunking and encapsulation between routers.
  These configurations were tested and validated for functionality and security."

Slides 24–26: Results

Script:
"Our results showcase a fully operational hotel management network with:

- Successful VLAN segmentation for department-specific traffic.
- Seamless inter-floor communication verified through testing.
- Wireless connectivity for mobile devices like laptops and smartphones.
  The network met all operational requirements while adhering to security standards."

Slide 27: Conclusion

Script:
"In conclusion, this project demonstrated the design and implementation of a three-floor hotel network using Cisco Packet Tracer.

- VLAN segmentation and hierarchical topology ensured security and performance.
- Challenges were systematically addressed, highlighting the importance of planning and troubleshooting.
  This case study underscores the role of teamwork and attention to detail in achieving successful network solutions."

Slide 28: End

Script:
"Thank you for your time and attention.
We hope this presentation provided valuable insights into our network design and implementation journey.
Are there any questions?"

Let me know if you'd like adjustments to any specific slide!