



## CSR INITIATIVE

# JOB

# COMPETENCY

# PROGRAM

## #JCP

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# LEARNING PATH

- Level 1: A+
- Level 2: Introduction to Networks
- Level 3: Linux Fundamentals
- Level 4: Security & Cloud Essentials

## Hardware Fundamentals

- Personal Computer Components
- Storage Devices
- Mobile Digital Devices
- Connection Interfaces
- CPU, RAM, MOTHERBOARD, POWER SUPPLIES

## Operating System Fundamentals

- PC and Mobile Operating Systems
- PC Operating System Tools and Utilities

## Networking and Security Fundamentals

- Network Types
- Network Components
- Common Network Services
- Cloud Concepts
- Security Fundamentals

## Safety and Operational Procedures

- Basic Maintenance Tools and Techniques
- Personal and Electrical Safety
- Environmental Safety and Materials Handling
- Professionalism and Communication
- Organizational Policies and Procedures
- Troubleshooting Theory

## Working with Other Operating Systems

- The OS X Operating System
- The Linux Operating System

## Introduction to Networks

- What's a Network?
- The Local Area Network
- Common Network Components
- Wide Area Network
- Network Architecture: Peer-to-Peer or Client-Server?
- Physical Network Topologies
- Bus Topology
- Star Topology
- Ring Topology
- Mesh Topology
- Point-to-Point Topology
- Point-to-Multipoint Topology
- Hybrid Topology
- Topology Selection, Backbones, and Segments
- Selecting the Right Topology
- The Network Backbone
- Network Segments
- CAN

## The Open Systems Interconnection Specifications

- |                                  |                                 |
|----------------------------------|---------------------------------|
| • Internetworking Models         | • The Session Layer             |
| • The Layered Approach           | • The Transport Layer           |
| • Advantages of Reference Models | • The Network Layer             |
| • The OSI Reference Model        | • The Data Link Layer           |
| • The Application Layer          | • The Physical Layer            |
| • The Presentation Layer         | • Introduction to Encapsulation |

- Network Interface Card
- Hub
- Bridge
- Switch
- Router
- Firewall
- IDS/IPS
- Access Point
- Wireless Range Extender
- Contention Methods
- Dynamic Host Configuration Protocol Server
- Multilayer Switch
- Load Balancer
- Domain Name Service Server
- Proxy Server
- Encryption Devices
- Analog Modem
- Packet Shaper

## IP Addressing

- IP Terminology
- The Hierarchical IP Addressing Scheme
- Network Addressing
- Private IP Addresses
- IPv4 Address Types
- Layer 2 Broadcasts
- Layer 3 Broadcasts
- Unicast Address
- Multicast Address (Class D)
- IP Subnetting
- Internet Protocol Version 6 (IPv6)
- Why Do We Need IPv6?
- The Benefits of and uses for IPv6
- IPv6 Addressing and Expressions
- Shortened Expression
- Address Types
- Special Addresses
- Stateless Autoconfiguration (EUI-64)
- DHCPv6 (Stateful)
- Migrating to IPv6

## WAN Infrastructure

- WAN basics
- WAN Connectivity methods

## Troubleshooting Network Issues

- Network Troubleshooting Methodology
- Network troubleshooting tools
- Wired and Wireless Connectivity and Performance issues

## Exploring Linux Command-Line Tools

- Understanding Command-Line Basics
- Exploring Your Linux Shell Options
- Using a Shell
- Exploring Shell Configuration
- Using Environment Variables
- Getting Help
- Using Streams, Redirection, and Pipes
- Exploring Types of Streams
- Redirecting Input and Output
- Piping Data Between Programs
- Generating Command Lines
- Processing Text Using Filters
- File-Combining Commands
- File-Transforming Commands
- File-Formatting Commands
- File-Viewing Commands
- File-Summarizing Commands

## Managing Files

- File Naming and Wildcard Expansion Rules
- File Commands
- File Archiving Commands
- Managing Links
- Directory Commands
- Managing File Ownership
- Assessing File Ownership
- Changing a File's Owner
- Changing a File's Group
- Configuring Routing
- Using GUI Configuration Tools
- Using the ifup and ifdown Commands
- Configuring Hostnames
- Diagnosing Network Connections
- Testing Basic Connectivity
- Tracing a Route
- Checking Network Status
- Examining Raw Network Traffic

## Administering the System

- Managing Users and Groups
- Understanding Users and Groups
- Configuring User Accounts
- Configuring Groups
- Tuning User and System Environments
- Using System Log Files
- Setting Logging Options
- Manually Logging Data
- Rotating Log Files
- Reviewing Log File Contents
- Maintaining the System Time
- Linux Time Concepts
- Manually Setting the Time
- Using NTP
- Running Jobs in the Future
- Understanding the Role of cron
- Creating System cron Jobs
- Creating User cron Jobs
- Using at

## Writing Scripts, Configuring E-mail, and Using Databases

- Managing the Shell Environment
- Reviewing Environment Variables
- Understanding Common Environment Variables
- Using Aliases
- Modifying Shell Configuration Files
- Writing Scripts
- Beginning a Shell Script
- Using Commands
- Using Variables
- Using Conditional Expressions
- Using Loops
- Using Functions
- Managing E mail
- Understanding E mail
- Choosing E mail Software
- Managing E mail
- Securing Your E-mail Server

## Understanding Threat Actors & Threat Intelligence

- Vulnerability, Threat, and Risk
- Internal/External
- Types of Hackers
- Threat Research Sources
- Tactics, Techniques, and Procedures and Indicators of Compromise

## Understanding Security Assessments

- Assess Organizational Security with Network Reconnaissance Tools
  - ipconfig, ping, and arp
  - Nmap
  - Wireshark
- Understanding Security Concerns with General Vulnerability Types
  - Zero-Day and Legacy Platform Vulnerabilities
  - Weak Host Configurations
  - Weak Network Configurations
  - Impacts from Vulnerabilities
  - Common Vulnerabilities and Exposures
  - Penetration Testing Concepts

## Social Engineering and Malware

- Familiarity/Liking
- Social Proof
- Scarcity and Urgency
- Dumpster Diving, Tailgating & Shoulder Surfing
- Phishing, Vishing & SMiShing
- Spear phishing, Whaling & Watering Hole Attack
- Pharming
- Typosquatting
- Credential Harvesting
- Malware Classification



- Authentication Factors
- Multifactor Authentication
- Authentication Attributes
- Implement Authentication Technologies

## Understanding Identity and Account Management Controls

- Identity Management Controls
- Background Check and Onboarding Policies
- Personnel Policies for Privilege Management
- Offboarding Policies
- Security Group-Based Privileges
- Understanding Account Policies
- Account Password Policy Settings
- Account Restrictions
- Account Lockout and Disablement

## Understanding Physical Security

### Cloud Essentials

- An Introduction to Cloud Computing Configurations and Deployments
- Cloud Operations
- Disaster Recovery, Business Continuity & Ongoing Maintenance
- Cloud Management



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