COMP 012 - Network Administration

Windows + Linux + Packet Tracer + Python Automation

SESSION 1: INTRODUCTION TO NETWORK ADMINISTRATION

ACTIVITY 1.1: NETWORK ADMINISTRATOR ROLES AND RESPONSIBILITIES

Topic: Understanding the modern network administrator role

Description: Explore the responsibilities, skills, and career path of network administrators

INSTRUCTIONS:

Research and document the network administrator role:
- Daily responsibilities of a network admin
- Required technical skills (networking, servers, security)
- Soft skills needed (troubleshooting, communication)
- Career progression paths
- Industry certifications (CCNA, CompTIA Network+, MCSA)

Compare traditional vs modern network admin:
- Traditional: On-premises, hardware-focused
- Modern: Cloud integration, automation, security-focused
- Impact of virtualization and SDN

Research salary ranges and job demand in your region

Create a personal skills assessment:
- Skills you already have
- Skills you need to develop

Deliverables: Submit network admin career research document (PDF)	**20 Points**

ACTIVITY 1.2: OSI MODEL AND TCP/IP REVIEW

Topic: Networking fundamentals refresher

Description: Review essential networking concepts for network administration

INSTRUCTIONS:

Create comprehensive reference guide:

OSI Model (7 Layers):
- Layer 7 - Application (HTTP, FTP, DNS, SMTP)
- Layer 6 - Presentation (SSL/TLS, encryption)
- Layer 5 - Session (NetBIOS, RPC)
- Layer 4 - Transport (TCP, UDP, ports)
- Layer 3 - Network (IP, ICMP, routing)
- Layer 2 - Data Link (MAC, switches, ARP)
- Layer 1 - Physical (cables, hubs, signals)

TCP/IP Model comparison (4 layers)
Create tables for:
• Common ports (20+ ports with services)
• Protocol functions and use cases
• Troubleshooting commands per layer
Draw data encapsulation diagram

Deliverables: Submit OSI/TCP-IP reference guide with diagrams	**25 Points**

ACTIVITY 1.3: LAB ENVIRONMENT SETUP

Topic: Setting up virtualization and simulation tools

Description: Configure your lab environment with VirtualBox and Packet Tracer

INSTRUCTIONS:

Install VirtualBox:
• Download from virtualbox.org
• Install with default settings
• Create Host-Only Network adapter
• Create NAT Network for internet access
Install Cisco Packet Tracer:
• Create Cisco Networking Academy account
• Download and install Packet Tracer
• Complete basic tutorial
Download OS images for later use:
• Windows Server 2022 Evaluation (Microsoft)
• Ubuntu Server 22.04 LTS (ubuntu.com)
Plan your lab network:
• Draw network diagram
• Plan IP addressing scheme (192.168.x.x)
• Document VM specifications
Take screenshots of all installations

Deliverables: Submit installation screenshots and lab network plan	**30 Points**

TOTAL POINTS: 75