Course Outline - Diploma in Network Engineering

Academic Period: **2023 - 2024**

Applicable NOC Code: **Computer engineers (except software engineers and designers) (NOC 21311), Computer network technicians (NOC 2281) and User support technicians (2282)**

Credential Awarded - **Diploma**

Prerequisites - **Ontario Secondary School Diploma or equivalent**

Program Duration - **30 Weeks**

Avg Hourly Income in Toronto Region - **As high as $53 per hour** *(Source: jobbank.gc.ca)*

Course Rationale -

The Diploma in Network Engineering program is designed to provide students with the knowledge and skills required to configure and maintain network infrastructures. The course aims to equip students with a strong foundation in CISCO networking, desktop support, service administration, and cloud computing, preparing them for a career in network engineering.

Course Description -

The Diploma in Network Engineering program offers comprehensive training in CISCO networking, desktop support, service administration, and cloud computing. Students will learn essential concepts and practical skills related to network configuration, troubleshooting, hardware and software support, server administration, and cloud technologies.

1

Modules covered in the course -

1. **CISCO Networking**

   a. **CCNA (Cisco Certified Network Associate – New Curriculum Exam 200-125)** Router Configuration | IPV4 Addressing | OSI Model | Routing Protocols (Static Routing, Dynamic Routing Protocols – RIP, OSPF, EIGRP) | Access List (Security) | Wide Area Networking Technologies | Network Address Translation | LAN Switching | IPV6 | IP Services

2. **Desktop Support**

   a. **CompTia (220-901) -** PC hardware and peripherals | mobile device hardware |networking and troubleshooting hardware and network connectivity issues

   b. **CompTia (220-902) -** Installing and configuring operating systems including Windows| iOS| Android |Apple OS X and Linux. It also addresses security| the fundamentals of cloud computing and operational procedures.

   c. **Configuring Windows 7 (Exam 70-680) -** Installing, upgrading, and migrating to Windows 7, Deploying Windows 7, Configuring hardware, and applications, Configuring network connectivity, Configuring access to resources, Configuring mobile computing, Monitoring and maintaining systems that run Windows 7, And configuring backup and recovery options.

3. **Service Administration & Support**

   a. **Installing and Configuring Windows Server 2012 (Exam 70-410) -** Install and configure Servers, Configure server roles and features, configure Hyper-V, Deploy and configure core network services, install and administer active directory, create and manage group policy.

   b. **Administering Windows Server 2012 (Exam 70-411) -** Deploy, manage and maintain servers, Configure File and Print Services, Configure network Services and access, Configure a Network Policy Server infrastructure, Configure and manage Active Directory, Configure and manage group policy.

   c. **Configuring Advanced Windows Server 2012 Services (Exam 70-412) -** Configure and manage high availability, Configure file and storage solutions, Implement business continuity & disaster recovery, Configure Network Services, Configure the Active Directory infrastructure, Configure Identity and Access Solutions

4. **Cloud Computing**

    a. **CompTia Cloud+** - Cloud Concepts and Models | Virtualization | Infrastructure| Resource Management | Security | Systems Management | Business Continuity in the Cloud

Learning Outcomes -

Upon successful completion of the program, students will be able to:

1. Manage resources, security, and systems in the cloud: Students will learn how to effectively manage cloud resources, implement security measures, and monitor and maintain cloud-based systems.
2. Explore business continuity and disaster recovery in the cloud: Students will understand strategies and practices for ensuring business continuity and recovering from potential disasters in a cloud computing environment.
3. Set up and maintain local area networks (LANs) and wide area networks (WANs): Students will understand the concepts and techniques involved in designing, configuring, and maintaining LANs and WANs for efficient data transfer and network connectivity.
4. Implement secure network access controls and address translation: Students will learn to establish secure access controls to protect network resources and configure network address translation for efficient IP address management.
5. Students will learn to manage server resources, configure file and print services, implement network access controls, and set up a Network Policy Server infrastructure.
6. Students will gain expertise in configuring high availability, file and storage solutions, disaster recovery, active directory infrastructure, and identity and access solutions.
7. Diagnose and resolve hardware and software issues: Students will develop the skills to identify and troubleshoot hardware and software problems commonly encountered in desktop systems, laptops, and mobile devices.
8. Configure and troubleshoot network routers, switches, and protocols: Students will gain the skills to set up and manage CISCO networking devices, ensuring proper routing and switching functionality.

Note: The learning outcome may vary based on every individual's learning objectives and focus on the program.

These course outcomes provide a comprehensive overview of the skills and knowledge students will acquire in the Diploma in Network Engineering program, preparing them for a successful career in network engineering and related fields.