INFR 2431U: Advanced Networking III – Final Project

Part 1 – Network Design, Implementation, and Documentation (due Nov. 28th, 2025 by 11:59pm)

Ontario Tech University has contracted your team to design and prototype a new network for them. They have been working on producing a detailed list of technical requirements the new network must adhere to, some of which can be found below. Your task is to design and build their new network prototype, and to provide full and complete network documentation for the newly proposed network solution.

1) Prototype a new network design for Ontario Tech based on the following requirements:
    1. All devices included in the topology must be configured and used.
    2. The network only needs to support IPv4 traffic.
    3. The network must use at least one interior gateway protocol at each site (Toronto, Chicago, ISP). Only OSPF and EIGRP are considered valid interior gateway protocols.
    4. The network must use BGP for connections between Chicago/Toronto and the ISP.
    5. All hosts must have full end-to-end connectivity (you will need to assign IP and default gateway to the PCs/Servers, unless DHCP is configured)
    6. The network must also contain the following features:
        i. Basic configurations, such as hostnames, banners, etc. (console/enable passwords are not required or recommended)
        ii. VLANs, inter-VLAN routing, routed ports
        iii. DHCP pools for different subnets at each site
        iv. NAT on the edge routers
        v. ACLs
        vi. At least two different security features (e.g., SSH, routing protocol authentication, BPDUGuard, etc.)