

# ETRO 240B : Cisco Networking 3

**Credits:** 3

**Class Hours:** 6 lecture/lab

**Prerequisites:** "C" or higher in ETRO 140B and ETRO 140C.

**Recommended:** Basic computer and internet usage skills.

**Description:** This course describes the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Spanning-Tree Protocol (STP) in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement a Wireless Local Area Network (WLAN) in a small-to-medium network.

**Semester Offered:** Fall

**Course Student Learning Outcomes (CSLOs):**

1. Identify and manage Cisco IOS® (Internetwork Operating System) Software licensing and configuration files.
2. Explain, configure, and troubleshoot first hop redundancy protocols including Hot Standby Redundancy Protocol (HSRP) and Gateway Load Balancing Protocol (GLBP) in a switched network.
3. Describe, configure, and troubleshoot enhanced switching technologies such as Virtual Local Area Networks (VLANs), Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Plus protocol (PVST+), and EtherChannel.
4. Configure and troubleshoot routers in a complex routed IPv4 or IPv6 network using the following advanced routing protocols: single-area Open Shortest Path First (OSPF), Multiarea OSPF, and Enhanced Interior Gateway Routing Protocol (EIGRP).
5. Explain, configure, and troubleshoot wireless routers and wireless clients.
6. Compare recommended designs for hierarchical and scalable networks in small-to-medium businesses.