# ETRO 140C : Cisco Networking 2

**Credits:** 3
**Class Hours:** 6 lecture/lab
**Prerequisites:** "C" or higher in ETRO 140B.
**Recommended:** Basic computer and internet usage skills.
**Description:** This course introduces the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches; implement and troubleshoot common issues with static, RIPv2, single-area OSPFv2, and single-area OSPFv3 routing protocols; implement inter-VLAN routing in both IPv4 and IPv6 networks; secure the network with Access Control Lists (ACLs); and apply essential network services such as Dynamic Host Configuration Protocol (DHCP) for IPv4 and IPv6, and Network Address Translation (NAT).
**Semester Offered:** Spring
**Course Student Learning Outcomes (CSLOs):**

1. Configure, verify, and troubleshoot basic operations of routers in a small routed network utilizing static and default routing, Routing Information Protocol (RIPv1 and RIPv2), and Open Shortest Path First (OSPF) single-area for IPv4 (OSPFv2) and IPv6 (OS
2. Describe and demonstrate the operations and benefits of Network Address Translation (NAT) including implementation and troubleshooting in an enhanced network.
3. Design, configure, monitor, and troubleshoot access control lists (ACLs) for IPv4 and IPv6.
4. Describe, configure, and troubleshoot basic and enhanced switching technologies, such as Virtual Local Area Networks (VLANs), VLAN Trunking Protocol (VTP), and 802.1q.
5. Explain, configure, and troubleshoot VLANs and inter-VLAN routing in an enhanced network.
6. Explain the purpose, nature, and operations of a router, routing tables, and the route lookup process.
7. Describe and demonstrate the operations and benefits of Dynamic Host Configuration Protocol (DHCP) for IPv4 and IPv6.
8. Describe basic and enhanced routing technologies, including static routing, dynamic routing protocols, distance vector routing protocols, link-state routing protocols, and how they work with the route lookup process.