# NET 225: Routing and Switching I

**COURSE DESCRIPTION:**

Prerequisites: NET 126
Corequisites: None

This course focuses on advanced IP addressing techniques, intermediate routing protocols, command-line interface configuration of switches, Ethernet switching, VLANs, STP, and VTP. Emphasis will be on application and demonstration of skills acquired in pre-requisite courses. Upon completion, students should be able to perform tasks related to VLSM, routing protocols, switching concepts and configuration, STP, VLANs, and VTP. Course Hours per Week: Class, 1. Lab, 4. Semester Hours Credit, 3.

**LEARNING OUTCOMES:**

Upon completing requirements for this course, the student will be able to:

A. Describe operations of routers and switches in larger networks.
   1. Explain basic switching concepts and switch operation
   2. Describe switching technologies of VLANs, 802.1q, and Spanning Tree
   3. Describe the logical operations of VLANs in separating networks and how routing occurs between them
B. Configure routers and switches for advanced functionality.
   1. Install, configure, verify, and troubleshoot switches and routers with VLANs, trunks, and Spanning Tree
C. Troubleshoot routers and switches.
   1. Interpret network diagrams
   2. Identify and correct common network problems at layers 1, 2, 3, and 7 using a layered model approach
   3. Verify network status and problems using ping, traceroute, arp, and other utilities

**OUTLINE OF INSTRUCTION:**

I.      LAN Design
II.     Scaling VLANs
III.    STP
IV.     Etherchannel and HSRP
V.      Dynamic Routing
VI.     EIGRP
VII.    EIGRP Tuning and Troubleshooting
VIII.   Single-Area OSPF
IX.     Multiarea OSPF
X.      OSPF Tuning and Troubleshooting