



## NETWORK SYSTEMS III: SCALING NETWORKS — ISTC 2011

### A. Course Description

- **Credits:** 3.00
- **Lecture Hours/Week:** 2.00
- **Lab Hours/Week:** 1.00
- **OJT Hours/Week:** 0
- **Prerequisites:**
  - ISTC 2006: Network Systems II: Routing and Switching Essentials
- **Corequisites:** None
- **MnTC Goals:** None

This course describes the architecture, components, and operations of routers and switches in a larger and more complex network. 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 OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement DHCP and DNS operations in a network. This is the third course preparing the student to take the Cisco Certified Network Associate (CCNA) Routing and Switching examination. Prerequisites: ISTC2006

### B. Course Effective Dates: 5/22/14 – Present

### C. Outline of Major Content Areas

As noted on course syllabus

### D. Learning Outcomes

1. Configure and troubleshoot DHCP and DNS operations for IPv4 and IPv6
2. Configure and troubleshoot STP operations
3. Configure and troubleshoot VTP, STP, and RSTP
4. Configure and troubleshoot advanced operations of routers and implement RIP, OSPF, and EIGRP routing protocols for IPv4 and IPv6
5. Configure and troubleshoot basic operations of routers in a complex routed network for IPv4 and IPv6 - Open Shortest Path First (OSPF) protocol (single-area OSPF and multi-area OSPF) - Enhanced Interior Gateway Routing Protocol (EIGRP)
6. Manage Cisco IOS? Software licensing and configuration files

7. Understand and describe the operations and benefits of link aggregation and Cisco VLAN Trunk Protocol (VTP)
8. Understand and describe the operations and benefits of the Spanning Tree Protocol (STP)

**E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

**F. Learner Outcomes Assessment**

As noted on course syllabus

**G. Special Information**

None noted