DATE SUBMITTED  
DATE DICC APPROVED  8/31/10  
DATE LAST REVIEWED  

COURSE INFORMATION FORM  

DISCIPLINE  
CSIS  

COURSE TITLE  
Implementing IP Switching: CCNP 2  

CR.HR  4  
LECT HR.  3  
LAB HR.  2  
CLIN/INTERN HR.  
CLOCK HR.  

CATALOG DESCRIPTION  
This course teaches students how to implement, monitor, and maintain switching in converged enterprise campus networks. Students will learn how to plan, configure, and verify the implementation of complex enterprise switching solutions. The course also covers the secure integration of VLANs, WLANs, voice, and video into campus networks. Comprehensive labs emphasize hands-on learning and practice to reinforce configuration skills.

PREREQUISITES  
CSIS 213  

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)  
Upon completion of this course, the student will be able to:  
1. Implement, monitor, and maintain switching in an enterprise campus network.  
2. Implement VLANs in campus networks.  
3. Configure and optimize high availability and redundancy on switches.  
4. Describe and implement LAN security features.  
5. Plan and prepare for advanced services in a campus infrastructure.
GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

The student will demonstrate:

1. the ability to use industry specific software and/or apply troubleshooting skills to solve problems. (1 – 5)

2. the ability to work effectively in a team environment. (1 – 5)

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. End of Chapter Assessments (1-5)
2. Final Exam (1-5)
3. Skills Based Assessment (1-5)
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Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Cisco Enterprise Campus Architecture
   A. Campus Network Design Principles
   B. Lifecycle Approach to Campus Design

II. VLANs in Campus Networks
   A. VLAN Technologies in a Campus Network
   B. VLANs and Trunks
   C. Link Aggregation

III. Spanning Tree Protocol
   A. Spanning Tree Protocols
   B. Spanning Tree Protocol Configuration
   C. Spanning Tree Enhancements
   D. Spanning Tree Troubleshooting Issues

IV. InterVLAN Routing
   A. InterVLAN Routing
   B. InterVLAN Routing Configuration
   C. Dynamic Host Configuration Protocol in a Multilayer Switched Environment
   D. Cisco Express Forwarding-Based Multilayer Switching

V. High Availability and Redundancy in a Campus Network
   A. High Availability Implementation and Monitoring
   B. Supervisor Redundancy
   C. Gateway Redundancy Protocols
D. Layer 3 Redundancy with HSRP, VRRP, and GLBP
E. Server Load Balancing

VI. Secure Campus Infrastructure
   A. Switch Security Fundamentals
   B. VLAN Attacks
   C. MAC-Based Attacks
   D. Spoof Attacks
   E. Network Switch Security
   F. Performance and Connectivity

VII. Advanced Services for the Campus Infrastructure
   A. Converged Traffic in the Campus Infrastructure
   B. Quality of Service
   C. IP Multicast
   D. Campus Wireless Infrastructure
   E. Campus Voice Infrastructure
   F. Campus Video Infrastructure