

## SYLLABUS

**DIVISION:** Business and Engineering Technology

**REVISED:** SPRING 2014

**CURRICULA IN WHICH COURSE IS TAUGHT:** IST, Information Systems Technology

**COURSE NUMBER AND TITLE:** ITN 252 – Building Multi-Layer Switched Networks-Cisco

**CREDIT HOURS:** 4 HOURS/WK **LEC:** 3 HOURS/WK **LAB:** 2 **LEC/LAB COMB:** 5

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**I. CATALOG DESCRIPTION:** ITN 252 - Provides in-depth instruction in switching as a core technology in today's networking environment. Course content includes VLANs, trunking protocols, spanning-tree protocol, HSRP, and multi-layer switching.

**II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:** ITN 252 will address the following Information Technology Outcomes:

- Implement Information Technology skills required by software applications.
- Apply methodologies to stay current in IT offerings, trends and certifications.
- Apply analytical and problem solving skills for computer system design, planning and support.
- Design, code, test, debug, and document software needed for computer system implementation and maintenance.
- Apply current IT industry standards, protocols, and techniques.
- Use instructional applications and material which could lead towards industry certification.

Please Note: The overall Learner Outcomes from all of the course requirements for the A.A.S. Degrees in IT are more in-depth than those of the Career Studies Certificates. However, the IT courses that are the same in both the A.A.S. Degrees and the Certificate Programs carry the same Learner Outcomes and are identical in content. Please review the DCC Catalog or visit the DCC Web Site for more details.

**III. REQUIRED BACKGROUND:** ITN 250 or Approved by instructor

**IV. COURSE CONTENT:**

- Campus Network Design Model and Network Requirements
- Defining VLANs
- Implementing Spanning-Tree
- Implementing Inter-VLAN Routing
- Implementing High Availability in a Campus Environment
- Wireless LANs
- Configuring Campus Switches to Support Voice
- Minimizing Service Loss and Data Theft in a Campus Network

**V. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE. STUDENTS WILL:**

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|---|-----------------------------------|
| X | Communication                     |
| X | Critical Thinking                 |
|   | Cultural and Social Understanding |
| X | Information Literacy              |
| X | Personal Development              |
| X | Quantitative Reasoning            |
| X | Scientific Reasoning              |

**VI. LEARNER OUTCOMES****VII. EVALUATION**

Upon conclusion of this course the student will be able to define, discuss, and demonstrate knowledge in the following concepts.	
<b>Demonstrate overview of the Campus Network Design Model and Requirements</b>	Lab exercises and online test - Identify key characteristics of various switching technologies. Describe LAN Switching as it relates to the Hierarchical Model of Network Design. Apply the Building-Block design approach to different switched network scenarios. Identify the Enterprise Composite Network Model. Describe the Campus Infrastructure Model.
<b>Define VLANs</b>	Lab exercises and online test - Implement Best Practices for VLAN Topologies. Implement VLANs. Implement Trunks. Propagate VLAN Configurations with the VLAN Trunking Protocol. Correct Common VLAN Configuration Errors.
<b>Implement Spanning-Tree</b>	Lab exercises and online test - Describe STP. Implement RSTP in the network. Implement MSTP in the network. Configure Link Aggregation with EtherChannel.
<b>Implement Inter-VLAN Routing</b>	Lab exercises and online test - Describe Routing between VLANs. Enable Routing Between VLANs. Deploy CEF-Based Multilayer Switching.
<b>Implement High Availability in a Campus Environment</b>	Lab exercises and online test - Configure Layer 3 Redundancy with HSRP. Optimize HSRP. Configure Layer 3 Redundancy with VRRP and GLBP.
<b>Configure Wireless LANs</b>	Lab exercises and online test - Describe Wireless LANs. Describe Wireless LAN Topologies. Determine Wireless LAN Technology Standards. Configure Cisco WLAN Clients. Implement Wireless LANs. Configure Wireless LANs.
<b>Configure Campus Switches to Support Voice</b>	Lab exercises and online test Plan for the implementation of Voice in a Campus. Accommodate Voice Traffic on Campus Switches.
<b>Minimize Service Loss and Data Theft in a Campus Network</b>	Lab exercises and online test - Identify Switch Security Issues. Protect Against VLAN Attacks. Implement STP Security Mechanisms. Prevent STP Forwarding Loops. Secure Network Switches.