CIT 405. MULTI-LAYER SWITCHED NETWORKS (Cisco #7).
Credit Hours: 5
Scheduled hours per week
   Lecture: #
   Lab: #
   Other: #

Catalog Course Description: This course is the second in a series of three required to prepare the student for a career in networking and the Cisco CCNP certification. Topics covered include LAN media, advanced switch configuration, VLAN’s spanning tree protocol and redundant links, routing between switches, multi-layer switching, hot standby routing protocol, multi-casting, and restricting network access.

Pre-requisites: Grade of “C” or better in CIT 206

Co-requisites: N/A

Course Learning Outcomes:
- Describe and discuss key characteristic of switching technologies
- Describe and discuss network design using a hierarchical model
- Demonstrate ability to implement and configure Spanning-Tree Protocol
- Describe and apply various inter-VLAN routing techniques
- Demonstrate ability to implement high availability and gateway redundancy protocols
- Describe, discuss, and apply various network management techniques and security

Topics to be studied:
- Network Design Fundamentals
- Campus Network Architecture
- Spanning Tree in Depth
- Inter-VLAN Routing
- First-Hop Redundancy
- Network Management
- Switching Features and Technologies for the Campus Network
- High Availability
- Campus Network Security

Relationship of Course to Program or Discipline Learning Outcomes:

| Ability to understand, plan, and execute good Project Management                              |
| Ability to recognize and apply industry recognized code of ethics to various situations       |
| X Ability to understand and apply Information Security concepts and best practices             |
| X Ability to plan, implement, and troubleshoot Advanced Routing and Switching technologies   |
| Ability to plan, implement, and troubleshoot Advanced Systems Administration technologies     |
| Ability to plan, implement, and troubleshoot Advanced Security Systems                        |

Relationship of Course to General Education Learning Outcomes:

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<th>Composition and Rhetoric</th>
<th>Students illustrate a fundamental understanding of the best practices of communicating in English and meet the writing standards of their college or program-based communication requirements.</th>
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### Science & Technology
Students successfully apply systematic methods of analysis to the natural and physical world, understand scientific knowledge as empirical, and refer to data as a basis for conclusions.

### Mathematics & Quantitative Skills
Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.

### Society, Diversity, & Connections
Students demonstrate understanding of and a logical ability to successfully analyze human behavior, societal and political organization, or communication.

### Human Inquiry & the Past
Students interpret historical events or philosophical perspectives by identifying patterns, applying analytical reasoning, employing methods of critical inquiry, or expanding problem-solving skills.

### The Arts & Creativity
Students successfully articulate and apply methods and principles of critical and creative inquiry to the production or analysis of works of art.

| 5/3/2016 |

**Special requirements of the course:**
N/A

**Additional information:**
N/A

**Prepared by:** Doug Rhodes

**Date:** 10/20/2017