#### SYLLABUS

**DIVISION:** Business and Engineering Technology

**REVISED:** SPRING 2014

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

COURSE NUMBER AND TITLE: ITN 253 – Optimizing Converged Networks-Cisco

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

I. CATALOG DESCRIPTION: ITN 253 - Centers on instruction in troubleshooting tools and techniques appropriate to the network communications environment. Course content includes workstation troubleshooting software, communication equipment troubleshooting options, and typical problems related to switching, WAN, and routing technologies.

# II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES: ITN 253 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 157 or Approved by instructor

#### IV. COURSE CONTENT:

- Overview of Converged Network Connectivity Requirements
- Cisco VoIP Implementations
- Introduction to IP QOS
- Implementation of DiffServ QOS Model
- Implementation of Cisco AutoQOS
- Implementation of Wireless Scalability

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

- X Communication
- X Critical Thinking
- Cultural and Social Understanding 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	
Discuss Converged Network Connectivity Requirements	Lab exercises and online test - Describe the Evolution of Telephony in the Enterprise. Describe the Converged Network Requirements.
Implement Cisco VoIP	Lab exercises and online test - Describe the benefits and components of VoIP Networks. Digitize and Packetize VoIP Packets. Encapsulate Voice Packets for Transport. Calculate Bandwidth Requirements for VoIP. Implement VoIP in an Enterprise Network.
Implement IP QOS	Lab exercises and online test - Describe IP QOS Implement a Cisco IOS QOS. Select an Appropriate QOS Policy Model. Utilize MQC for Implementing QOS.
Implement DiffServ QOS Model	Lab exercises and online test - Describe Classification and Marking. Utilize NBAR for Classification. Describe Queuing Implementations Configure WFQ, CBWFQ, and LLQ. Configure Congestion Avoidance. Implement Traffic Policing and Shaping. Understand WAN Link Efficiency Mechanisms. Implement QOS Pre-classify Deploy End-to-End QOS.
Implement Cisco AutoQOS	Lab exercises and online test - Define Cisco's AutoQOS technologies. Mitigate Common Cisco AutoQOS Issues.
Implement Wireless Scalability	Lab exercises and online test - Implement WLAN QOS. Describe and configure Wireless Security Manage WLAN. Deploy Cisco's WCS technology. Configure Encryption and Authentication on Lightweight Access Points.