

HUDSON VALLEY COMMUNITY COLLEGE
TROY, NEW YORK
COURSE OUTLINE

COURSE TITLE: Advanced Networking Topics – VoIP and Wireless Technologies

COURSE SUBJECT AND NUMBER: CISS 272

DEPARTMENT: Computing and Information Sciences

CREDIT HOURS: 4

CONTACT HOURS: 4 Lecture

SEMESTER COURSE IS OFFERED: Spring

OFFERED DISTANCE LEARNING:

PREREQUISITES: Yes **If yes, list prerequisite(s):** CISS 121 Networking II – Introduction to Network Administration

COREQUISITES: No **If yes, list corequisite(s):**

PREREQUISITE(S) OR COREQUISITE(S): Yes **If yes, list prerequisite(s):** CISS 271 Advanced Switching and Network Management or by permission of Department Chair.

TEXT (S):

**Implementing Cisco IOS Network Security (IINS):
(CCNA Security exam 640-553) (Authorized Self-Study Guide)
Catherine Paquet
Cisco Press
eBook
ISBN-10: 1-58705-878-2
ISBN-13: 978-1-58705-878-3**

**CCNA Wireless Official Exam Certification Guide (CCNA IUWNE 640-721)
Brandon James Carroll.
Cisco Press
eBook
ISBN-10: 1-58705-618-6
ISBN-13: 978-1-58705-618-5**

**CCNA Voice Official Exam Certification Guide (640-460 IIUC)
Jeremy Cioara, Michael J. Cavanaugh, Kris A. Krake.
Cisco Press.
eBook
ISBN-10: 1-58705-831-6
ISBN-13: 978-1-58705-831-8**

LAB FEES: No

FINAL EXAM/FINAL PROJECT: If yes, please specify: No

ORIGINAL SUBMISSION DATE: 4/4/11

CURRICULUM COMMITTEE APPROVED REVISION DATE: 4/16/12

PREPARED BY: James G. Looby

COURSE DESCRIPTION: This course will present evolving and emerging topics in networking to advanced networking students. The two main focal points of this course will be VoIP (Voice over IP) and 802.11n wireless implementation and advanced troubleshooting as presented in the Cisco Certified Network Associate and Professional (CCNA and CCNP) exam curriculums. These components will necessarily be presented with an integrated approach citing their interdependence in accord with the Enterprise Composite Network Model (ECNM).

The VoIP component will present implementation and QoS (Quality of Service) concepts and challenges in both small and large business environments. The wireless component will focus on the newer 802.11n wireless technology and will give students the knowledge base to survey, analyze, design, implement, configure and deploy a secure wireless infrastructure. The course will include a substantial troubleshooting component to provide students with advanced experience in correcting errors and solving complex routing and switching issues in a deployed production setting.

ACTIVITIES AND ASSIGNMENTS:

- Lectures
- Lab activities and assignments
- Homework
- Tests
- Quizzes

GRADE COMPUTATION (In general terms as defined by college policy. Specifics, including Z grade, will be defined on the instructor's syllabus). :

| | |
|------------------------|-----|
| Laboratory Assignments | 25% |
| Quizzes/Tests | 25% |
| Projects | 50% |

ADA COMPLIANCE: In compliance with the Americans with Disabilities Act of 1990 and with Section 504 of the Rehabilitation Act, Hudson Valley Community College is committed to ensuring educational access and accommodations for all its registered students, in order to fully participate in programs and course activities or to meet course requirements. Hudson Valley Community College's students with documented disabilities and medical conditions are encouraged to access these services by registering with the Center for

Access and Assistive Technology to discuss their particular needs for accommodations. For information or an appointment contact the Center for Access and Assistive Technology, located in room 130 of the Siek Campus Center or call 518-629-7154/TDD: 518-629-7596 .

STUDENT BEHAVIORAL OBJECTIVES:

Students will be able to:

Implement and assess security as follows:

- Develop a network security policy to counter security threats and provide information assurance
- Configure routers on the network perimeter with Cisco IOS Software security features
- Configure firewalls to perform basic security operations on a network
- Configure site-to-site VPNs using Cisco IOS features
- Configure LAN devices to control access, resist attacks, shield other network devices and systems, and protect the integrity and confidentiality of network traffic

Implement and assess wireless technologies as follows:

- Discuss Wireless principles
- Discuss technologies and topologies
- Configure Wireless protocols and clients

Implement and assess VOIP as follows:

- Configure an Asterisk Server
- Connect IP phones to the LAN infrastructure
- Configure VOIP Gateways and Trunks

TOPIC OUTLINE:

| | Topics |
|----------|--------------------------------------------|
| Module 1 | Security infrastructure and polices |
| Module 2 | Firewalls and perimeter defense |
| Module 3 | Wireless infrastructure and polices |
| Module 4 | Wireless QoS and Security |
| Module 5 | VOIP infrastructure and polices |
| Module 6 | VOIP QoS and Security |

Benefits for Veterans:

<https://www.hvcc.edu/veterans/>