

Washtenaw Community College Comprehensive Report

CNT 226 Enterprise Networking, Security, and Automation (ENSA) Effective Term: Winter 2021

Course Cover

Division: Business and Computer Technologies

Department: Computer Science & Information Technology

Discipline: Computer Networking Technology

Course Number: 226

Org Number: 13400

Full Course Title: Enterprise Networking, Security, and Automation (ENSA)

Transcript Title: Enterprise Networking

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: Course Change

Change Information:

Consultation with all departments affected by this course is required.

Course title

Course description

Outcomes/Assessment

Objectives/Evaluation

Rationale: The Cisco Networking Academy has updated the entire program. We must update our program and syllabi to match theirs in order to maintain our contract and remain an official Networking Academy. The program has been updated in consultation with Cisco's many channel partner companies.

Proposed Start Semester: Fall 2020

Course Description: The third course in the CCNAv7 curriculum describes the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks. This course covers wide area network (WAN) technologies and quality of service (QoS) mechanisms used for secure remote access. Enterprise Networking, Security, and Automation (ENSA) also introduces software-defined networking, virtualization, and automation concepts that support the digitalization of networks. Students gain skills to configure and troubleshoot enterprise networks, and learn to identify and protect against cybersecurity threats. They are introduced to network management tools and learn key concepts of software-defined networking, including controller-based architectures and how application programming interfaces (APIs) enable network automation. The title of this course was previously Scaling Networks.

Course Credit Hours

Variable hours: No

Credits: 4

Lecture Hours: Instructor: 60 **Student:** 60

Lab: Instructor: 0 **Student:** 0

Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 60 **Student:** 60

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

Prerequisite

CNT 216 minimum grade "C-"

or

Prerequisite

equivalent

General Education

Degree Attributes

High School articulation approved

General Education Area 7 - Computer and Information Literacy

Assoc in Arts - Comp Lit

Assoc in Applied Sci - Comp Lit

Assoc in Science - Comp Lit

Request Course Transfer

Proposed For:

Eastern Michigan University

Student Learning Outcomes

1. Configure and troubleshoot routers and switches.

Assessment 1

Assessment Tool: Outcome-related questions on the Cisco online final exam

Assessment Date: Fall 2021

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher on the outcome-related questions

Who will score and analyze the data: Departmental faculty will analyze the data.

Assessment 2

Assessment Tool: Outcome-related questions on the Cisco skills-based final exam

Assessment Date: Fall 2021

Assessment Cycle: Every Three Years

Course section(s)/other population: Random sample of a minimum of three sections over the three-year period

Number students to be assessed: All students

How the assessment will be scored: The skills exam is scored by WCC faculty, using the CISCO-provided rubric.

Standard of success to be used for this assessment: At least 70% of students must score 70% or higher on the Skills-Based Final Exam.

Who will score and analyze the data: Department faculty and external sources (if available)

2. Implement Access Control Lists (ACLs) to filter traffic.

Assessment 1

Assessment Tool: A Departmental Task List will be used to assess proficiency (pass/fail) in applying the concepts and in performing hands-on tasks.

Assessment Date: Fall 2021

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 70% of the students will successfully complete all of the tasks.

Who will score and analyze the data: Departmental faculty will score and analyze the data.

3. Configure Network Address Translation (NAT).

Assessment 1

Assessment Tool: Outcome-related questions on the Cisco skills-based final exam

Assessment Date: Fall 2021

Assessment Cycle: Every Three Years

Course section(s)/other population: Random sample of a minimum of three sections over the three-year period

Number students to be assessed: All students

How the assessment will be scored: The skills exam is scored by WCC faculty, using the CISCO-provided rubric.

Standard of success to be used for this assessment: At least 70% of students must score 70% or higher on the Skills-Based Final Exam.

Who will score and analyze the data: Departmental faculty and external sources (if available)

Assessment 2

Assessment Tool: Outcome-related questions on the Cisco online final exam

Assessment Date: Fall 2021

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher on the outcome-related questions

Who will score and analyze the data: Departmental faculty will analyze the data.

4. Implement protocols to manage the network.

Assessment 1

Assessment Tool: Outcome-related questions on the Cisco skills-based final exam

Assessment Date: Fall 2021

Assessment Cycle: Every Three Years

Course section(s)/other population: Random sample of a minimum of three sections over the three-year period

Number students to be assessed: All students

How the assessment will be scored: The skills exam is scored by WCC faculty, using the CISCO-provided rubric.

Standard of success to be used for this assessment: At least 70% of students must score 70% or higher on the Skills-Based Final Exam.

Who will score and analyze the data: Departmental faculty and external sources (if available)

Assessment 2

Assessment Tool: Outcome-related questions on the Cisco online final exam

Assessment Date: Fall 2021

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher on the outcome-related questions

Who will score and analyze the data: Departmental faculty will analyze the data.

Course Objectives

1. Implement Single-Area Open Short Path First version 2 (OSPFv2) in both point-to-point and broadcast multiaccess networks.
2. Identify correct statements pertaining to the mitigation of vulnerabilities, threats and exploits of a network.
3. Identify correct statements pertaining to the use of Access Control Lists (ACLs) to filter traffic.
4. Implement ACLs to filter traffic and secure administrative access.
5. Configure Network Address Translation (NAT).
6. Identify correct statements pertaining to the use of Virtual Private Networks (VPNs) and Internet Protocol Security (IPsec) to secure site-to-site and remote access connectivity.
7. Identify correct statements pertaining to the implementation of Quality of Service (QoS).
8. Identify correct statements pertaining to the implementation of each protocol covered throughout the course.
9. Configure, monitor, and troubleshoot the various protocols covered throughout the course.
10. Troubleshoot enterprise networks.
11. Identify correct statements pertaining to network virtualization.
12. Identify correct statements pertaining to network automation.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>John Trame</i>	<i>Faculty Preparer</i>	<i>Apr 09, 2020</i>
Department Chair/Area Director: <i>Cyndi Millns</i>	<i>Recommend Approval</i>	<i>Apr 10, 2020</i>
Dean: <i>Eva Samulski</i>	<i>Recommend Approval</i>	<i>Apr 14, 2020</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Jul 14, 2020</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Jul 15, 2020</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Jul 16, 2020</i>