Washtenaw Community College Comprehensive Report

CNT 234 Network Automation
Effective Term: Fall 2025

Course Cover

College: Business and Computer Technologies
Division: Business and Computer Technologies
Department: Computer Science & Information Technology
Discipline: Computer Networking Technology
Course Number: 234
Org Number: 13400
Full Course Title: Network Automation
Transcript Title: Network Automation
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: New Course
Change Information:
Rationale: The networking industry is undergoing a transformation to using a software-oriented approach with application programming interfaces (APIs) and automation. This change is driven be the ever-increasing complexity and size of networks due to new connections such as the internet of things (IoT), as well as a need to deliver more agile networking services. This change requires a new software-oriented skill-set that complements existing networking skills. This course will teach students the best practices of modern software development practices and DevOps, to understand and learn how to securely use APIs, and how to automate network operations using those APIs.
Proposed Start Semester: Fall 2025
Course Description: In the Network Automation course participants develop workforce readiness skills and build a foundation for success in automation-related careers and degree programs. Participants will learn, apply, and practice programming and infrastructure automation knowledge and skills through a series of in-depth hands-on experiences. This course will help learners prepare for the Cisco DEVASC certification exam.

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
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
CIS 120 minimum grade "C-"
and
Prerequisite
CNT 226 minimum grade "C-"
and
Prerequisite
CPS 141 minimum grade "C-"

General Education

Request Course Transfer

Proposed For:
Eastern Michigan University

Student Learning Outcomes

1. Recognize the steps necessary to develop an environment using DevNet Resources.
   Assessment 1
   Assessment Tool: Outcome-related Cisco checkpoint exam
   Assessment Date: Fall 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 70% of students will score 70% or higher.
   Who will score and analyze the data: Departmental faculty will analyze the Cisco-provided results.

2. Recognize REST API requests over HTTPS to securely integrate services.
   Assessment 1
   Assessment Tool: Outcome-related Cisco checkpoint exam
   Assessment Date: Fall 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 70% of students will score 70% or higher.
   Who will score and analyze the data: Departmental faculty will analyze the Cisco-provided results.

3. Deploy and secure applications and data in a cloud environment.
   Assessment 1
   Assessment Tool: Outcome-related Cisco checkpoint exam
   Assessment Date: Fall 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 70% of students will score 70% or higher.
   Who will score and analyze the data: Departmental faculty will analyze the Cisco-provided results.

Course Objectives

1. Manage the Linux file system and permissions.
2. Apply the appropriate DevNet resource to the given scenario.
3. Identify the attributes of application deployment types.
4. Address the constraints when consuming APIs.
5. Identify the parts of an HTTP response.
6. Interpret a sequence diagram that includes API calls.
7. Identify network topology elements such as switches, routers, firewalls, load balancers, and port values.
8. Identify common protocol port values such as SSH, Telnet, HTTP, HTTPS, and NETCONF.
9. Troubleshoot application connectivity issues.
10. Utilize various application deployment models.
11. Explain the contents of a Docker file.
12. Address security issues related to secret protection, encryption, and data handling.
13. Match the workflow being automated to the correct bash script.
14. Discuss the principles of DevOps practices.
15. Match the workflow being automated to the correct Ansible playbook.
16. Match the workflow being automated to the correct Python script that uses Cisco APIs including ACI, Meraki, Cisco Catalyst Center, or RESTCONF.

New Resources for Course

Software including virtual machines provided by the Cisco Networking Academy.

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Computer workstations/lab

Reviewer	Action	Date
Faculty Preparer:		
John Trame	*Faculty Preparer*	*Oct 28, 2024*
Department Chair/Area Director:		
Scott Shaper	*Recommend Approval*	*Oct 29, 2024*
Dean:		
Eva Samulski	*Recommend Approval*	*Oct 29, 2024*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Apr 24, 2025*
Assessment Committee Chair:		
Jessica Hale	*Recommend Approval*	*Apr 26, 2025*
Vice President for Instruction:		
Brandon Tucker	*Approve*	*Apr 28, 2025*