

1. **COURSE TITLE*:** CISCO Enterprise Networking, Security, & Automation
2. **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION*:** CSCI 2239
3. **PREREQUISITE(S)*:** CSCI 2236 **COREQUISITE(S)*:** None
4. **COURSE TIME/LOCATION:** (Course Syllabus – Individual Instructor Specific)
5. **CREDIT HOURS*:** 3 **LECTURE HOURS*:** 3
LABORATORY HOURS*: (contact hours) **OBSERVATION HOURS*:**
6. **FACULTY CONTACT INFORMATION:** (Course Syllabus – Individual Instructor Specific)
7. **COURSE DESCRIPTION*:**

This course is intended to be the third and final course of the CCNA track. The course provides comprehensive coverage of topics 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. 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.

8. **LEARNING OBJECTIVES*:**
 1. Describe and explain how OSPF operates.
 2. Configure an OSPFv2 router.
 3. Explain how vulnerabilities, threats, and exploits can be mitigated to enhance network security.
 4. Explain how ACLs are used as part of a network security policy.
 5. Implement IPv4 ACLs to filter traffic and secure administrative access.
 6. Configure NAT services on the edge router to provide IPv4 address scalability.
 7. Explain how WAN access technologies can be used to satisfy business requirements.
 8. Explain how VPNs and IPsec secure site-to-site and remote access connectivity.
 9. Explain how networking devices implement QoS.
 10. Implement protocols to manage the network.
 11. Explain the characteristics of scalable network architectures.
 12. Troubleshoot enterprise networks.

13. Explain the purpose and characteristics of network virtualization.
14. Explain how network automation is enabled through RESTful APIs and configuration management tools.

9. ADOPTED TEXT(S)*:

No textbook required

9a: SUPPLEMENTAL TEXTS APPROVED BY FULL TIME DEPARTMENTAL FACULTY (INSTRUCTOR MUST NOTIFY THE BOOKSTORE BEFORE THE TEXTBOOK ORDERING DEADLINE DATE PRIOR TO ADOPTION) *.**

10. OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)**

11. GRADING SCALE*:**

Grading will follow the policy in the catalog. The scale is as follows:

- A: 90 – 100
- B: 80 – 89
- C: 70 – 79
- D: 60 – 69
- F: 0 – 59

12. GRADING PROCEDURES OR ASSESSMENTS:

<i>Category</i>	<u>EXAMPLE ONLY</u> <i>Total Points</i>	<i>% of Grade</i>
Chapter Assignments (10x30)	300	30%
Quizzes (10x20)	200	20%
Unit Exams (3x100)	300	30%
Assignments (5x10)	50	5%
Annual Report Project (100)	100	10%
Attendance	50	5%
Total	1000	100%

13. COURSE METHODOLOGY OR COURSE FORMAT:

May include but not limited to: Lectures, independent and group projects, in-class and home assignments, tests, quizzes and lab exercises. This course must be offered on campus. Attendance is required.

14. COURSE OUTLINE:

Week	Topics	Chapters	Learning Objectives
1	OSPF Concepts	Chapter 1	1
2	OSPF Configuration	Chapter 2	2
3	Network Security Concepts	Chapter 3	3
4	ACL Concepts	Chapter 4	4
5	ACL Configuration	Chapter 5	5
6	NAT for IPv4	Chapter 6	6
7	WAN Concepts	Chapter 7	7
8	Mid-Term Exam		
9	VPN and IPsec Concepts	Chapter 8	8
10	QoS Concepts	Chapter 9	9
11	Network Management	Chapter 10	10
12	Network Design	Chapter 11	11
13	Network Troubleshooting	Chapter 12	12
14	Network Virtualization	Chapter 13	13
15	Network Automation	Chapter 14	14
16	Final Exam		

15. SPECIFIC MANAGEMENT REQUIREMENTS*: None**

16. FERPA: *

Students need to understand that their work may be seen by others. Others may see students' work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that their work may be submitted to other entities for the purpose of plagiarism checks.

17. ACCOMMODATIONS: *

Students requesting accommodations may contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431, X 2604.

Students seeking a religious accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor and the Academic Affairs office with written notice of the specific dates for which the student requires an accommodation and must do so no later than fourteen (14) days after the first day of instruction or fourteen (14) days before the dates of absence, whichever comes first. For more information about Religious Accommodations, contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431 X 2604.

18. OTHER INFORMATION*:**

SYLLABUS TEMPLATE KEY

* Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

** Any alteration or addition must be approved by the Curriculum Committee

*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.