North Central State College

MASTER SYLLABUS	2025-2026

A. Academic Division: Engineering Technology, Business & Criminal Justice Division

B. Discipline: Information Technology - Networking

C. Course Number and Title: ITEC1665 – Enterprise Networking, Security, and Automation CCNA3

D. Assistant Dean: Brooke Miller, M.B.A.

E. Credit Hours: 2
Lecture: 1 hour
Laboratory: 2 hours

F. Prerequisites: ITEC 1645 (minimum grade C-)

G. Last Course/Curriculum Revision Date: Fall 2025 Origin date: 01/31/2020

H. Textbook(s) Title:

Provided

I. Workbook(s) and/or Lab Manual:

J. Course Description: This is the third course in a series of three. The curriculum provides a comprehensive introduction to the networking field and in-depth exposure to fundamental networking, LAN switching, wireless LANs, basic routing, Cybersecurity, WAN concepts, VPNs, QoS, virtualization, and network automation. Threaded throughout the course are security concepts and skills including threat mitigation through LAN security, ACLs, and IPsec. Through hands-on lab activities, students learn how to implement network technologies and troubleshoot common issues. This course, together with ITEC 1640 and ITEC 1645, prepares students for Cisco's CCNA certification exam.

K. College-Wide Learning Outcomes:

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Explain how single-area OSPF operates in both point-to-point and broadcast multi-access networks.	Week 1 tests, labs, practice and final exams
2. Implement single-area OSPFv2 in both point-to-point and broadcast multi-access networks.	Week 2 tests, labs, practice and final exams
3. Explain how vulnerabilities, threats, and exploits can be mitigated to enhance network security.	Week 3 tests, labs, practice and final exams
4. Implement IPv4 ACLs to filter traffic and secure administrative access.	Week 4 tests, labs, practice and final exams
5. Explain how VPNs and IPsec are used to secure site-to-site and remote access connectivity.	Week 5 tests, labs, practice and final exams
6. Explain how networking devices implement QoS.	Week 6 tests, labs, practice and final exams
7. Implement network management protocols to monitor the network.	Week 7 tests, labs, practice and final exams
8. Troubleshoot enterprise networks for a given set of conditions.	Week 8 tests, labs, practice and final exams
9. Explain the purpose and characteristics of network virtualization.	Week 8 tests, labs, practice and final exams

M. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

N. College Procedures/Policies:

North Central State College believes that every student is a valued and equal member of the community.* Every student brings different experiences to the College, and all are important in enriching academic life and developing greater understanding and appreciation of one another. Therefore, NC State College creates an inclusive culture in which students feel comfortable sharing their experiences. Discrimination and prejudice have no place on the campus, and the College takes any complaint in this regard seriously. Students encountering aspects of the instruction that result in barriers to their sense of being included and respected should contact the instructor, assistant dean, or dean without fear of reprisal.

* *Inclusive of race, color, religion, gender, gender identity or expression, national origin (ancestry), military status (past, present or future), disability, age (40 years or older), status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, genetic information, or sexual orientation*

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at https://ncstatecollege.edu/documents/President/PoliciesProcedures/PolicyManual/Final%20PDFs/14-081b.pdf

North Central State College

SYLLABUS ADDENDUM

Academic Division:	Engineering Technology, Business & Criminal Justice Division	**Discipline:**	Information Technology
Course Coordinator:	Daniel Foss		
Course Number:	ITEC-1665-900	**Course Title:**	CCNA 3 Enterprise Networking, Security, and Automation
Semester / Session:	Spring 2026	**Start / End Date:**	1/12/2026 - 5/8/2026

Instructor Information

Name:	Daniel Foss Associate Professor	**Credentials:**	M.Ed., Curriculum and Instruction – Computers B.S., Education
Phone Number:	419-755-4728	**E-Mail Address:**	dfoss@ncstatecollege.edu
Office Location:	Kehoe Room 139	**Office Hours:**	By appointment: Mondays 3:00 PM – 4:30 PM Tuesdays, 8:00 AM -11:30 AM Other times via Zoom: https://tinyurl.com/ITEC-Office-Hours

I. Topical Timeline / Course Calendar (Subject to Change – refer to Canvas for schedule):

Week	Modules Covered	Assignments	Due Date (Friday)
1	Modules 1–2: OSPF Concepts and Operation	Labs: Packet Tracer – Logical and Physical Mode Exploration. Simulations: Configure OSPF Features, OSPF Packets, OSPF Operation. Quizzes: 1.1.7, 1.2.5, 1.3.7. PTSA: ITN Practice PT Skills Assessment.	1/16/2026
2	Modules 2: Single Area OSPFv2 Configuration	Labs: Configure Single Area OSPFv2. Simulations: Packet Tracer – Point-to-Point OSPFv2, Determine DR/BDR, Modify OSPFv2. Quiz: 1.4.2 Module Quiz.	1/23/2026
3	Modules 2: Advanced OSPFv2	Labs: Propagate Default Route, Verify OSPFv2. Simulations: Packet Tracer – Single Area OSPFv2 Configuration. PTSA: SRWE Practice PT Skills Assessment Part 1.	1/30/2026
4	Modules 2–3: Multiarea OSPF & Cybersecurity	Labs: Configure Single Area OSPFv2. Simulations: Packet Tracer – Multiarea OSPF Exploration. Quizzes: Cybersecurity Basics, Threat Actors, Malware. Exam: Checkpoint – OSPF Concepts and Configuration.	2/6/2026
5	Modules 3–4: Network Security Concepts	Labs: Social Engineering, Explore DNS Traffic. Simulations: Packet Tracer – Network Security Exploration, ACL Demonstration. Quizzes: Network Security Best Practices, Cryptography, ACL Concepts.	2/13/2026
6	Modules 5: ACL Configuration	Labs: Configure Standard and Extended IPv4 ACLs. Simulations: Packet Tracer – Numbered/Named ACLs, Modify ACLs, Extended ACL Scenarios.	2/20/2026
7	Modules 5: ACL Implementation	Labs: Configure and Verify Extended IPv4 ACLs. Simulations: Packet Tracer – ACL Implementation Challenge. Exam: Checkpoint – Network Security Exam.	2/27/2026
8	Modules 6: NAT Concepts	Labs: Configure NAT for IPv4. Simulations: Packet Tracer – Static NAT, Dynamic NAT, PAT. Quizzes: NAT Characteristics, Advantages/Disadvantages.	3/6/2026
	No Classes	Spring Break	3/13/2026
9	Modules 6–8: WAN & VPN Concepts	Labs: Configure NAT for IPv4; Research Broadband Internet Access Technologies. Simulations: Packet Tracer – WAN Concepts. Quizzes: WAN Operations, VPN Technology, IPsec.	3/20/2026
10	Modules 9–10: QoS & Network Management	Labs: Research Network Monitoring Software; Manage Router Config Files. Simulations: Packet Tracer – CDP/LLDP, NTP, Backup Configurations. Exam: Checkpoint – WAN Concepts Exam.	3/27/2026
11	Modules 10: Network Management	Labs: Use Tera Term, TFTP, Flash, USB for Config Management. Simulations: Packet Tracer – Upgrade Cisco IOS Image.	4/3/2026
12	Modules 10: Advanced Management	Labs: Password Recovery Procedures; Configure CDP, LLDP, NTP. Quiz: Module Quiz Network Management.	4/10/2026
13	Modules 11–12: Network Design & Troubleshooting	Labs: Troubleshoot Enterprise Networks. Simulations: Packet Tracer – Troubleshooting Challenges. Quizzes: Hierarchical Networks, Scalable Networks, Troubleshooting Tools.	4/17/2026
14	Modules 13–14: Virtualization & Automation	Labs: Install Linux VM; Network Virtualization. Quizzes: APIs, REST, Cisco DNA Center. Exam: Checkpoint – Emerging Network Technologies. ENSA Practice PT Skills Assessment.	4/24/2026
15	Finals Prep	Exams: CCNA Certification Practice Exam, ENSA Final Skills Exam	5/1/2026

Course Number: ITEC1860 **Course Title:** Switch-Route-Wireless CCNA 2

Week	Modules Covered	Assignments	Due Date (Friday)
16	Final Exams	Enterprise Networking, Security, and Automation Final Exam; End of Course Survey.	5/4/2026

II. Grading and Testing Guidelines:

Category	Count	Points	Weight
Labs	13	1300	20 %
Simulations	33	3300	25 %
Quizzes	16	1600	25 %
Exams	11	1100	30 %

- Grading scale is the college grading scale:

NUMERIC	GRADE	POINTS	DEFINITION
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77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

III. Examination Policy:

- All exams must be submitted through the Cisco Networking Academy LMS and/or Canvas.
- You may reference the online curriculum, official CCNA documentation, and other reputable sources.
- Collaboration on exams is not permitted unless explicitly authorized.
- AI tools (e.g., Copilot, ChatGPT) are not allowed during quizzes or exams.
- Free Tutoring Service is available: https://ncstatecollege.edu/student-services/tutoring/

Assignment Policy:

- All assignments must be completed using the Cisco Networking Academy LMS and/or Canvas.
- AI Tools like Copilot and ChatGPT may be used for feedback or clarification, but final submissions must reflect your own independent work.
- Use of the online curriculum for reference is encouraged.
- You may consult documentation, tutorials, and forums for guidance.
- Download, complete, and upload your own work. All submitted project files must be your own original work.
- Plagiarism or submission of work not your own is a serious offense and may result in course failure.
- If you need assistance with the course assignments, contact the Tutoring Department or the Instructor. Tutoring Information (free) can be found at: https://ncstatecollege.edu/student-services/tutoring/

IV. Course Attendance and Late Assignment Policy:

- Class attendance is recorded by completion of weekly assignments and activities.
- Assignments are due before midnight every Friday.
- Early submissions are encouraged.
- Except for the final project, all assignments are allowed to be submitted late.
- Each assignment builds on previous work, do not skip assignments. If it is late, submit as soon as possible.
- If you anticipate missing a deadline, contact the instructor in advance to discuss possible accommodation.
- Excused absences include:
  a. Hospitalization
  b. Death in the family
  c. Personal illness or illness in immediate family
  d. Military leave
  e. Travel for employment

V. Course Expectations:

- All students are expected to demonstrate professional behavior and use language appropriate for the learning experience, both written and orally.
- For online classes, students are required to have access to an internet connection and a laptop or desktop computer. Chromebooks are not adequate for this course.
- MacBooks are acceptable, however, there may be some assignments that can only be completed on a Windows computer.
- The college provides free computer labs - https://ncstatecollege.edu/student-services/computer-labs/ and loaner laptops - https://ncstatecollege.edu/advocacy-and-resources/ - select Technology Resources