

Bossier Parish Community College
Master Syllabus

Course Prefix and Number: CTEC 257

Credit Hours: 4-4-0

Course Title: CCNA III

Course Prerequisites: CTEC 256

Textbook(s) and Materials: This course will utilize the learning modules and materials provided by the Cisco Networking Academy at <https://www.netacad.com>.

Course Description: Enterprise Networking, Security, and Automation (ENSA) is the third course in the CCNA series. This course covers wide area network (WAN) technologies and quality of service (QoS) mechanisms used for secure remote access along with the introduction of 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 cyber security 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. This course works to prep you for the CCNA certification.

Learning Outcomes:

At the end of this course, the student will:

- A. Recognize WANs and related technologies;
- B. Demonstrate setup and configuration of OSPF;
- C. Discuss vulnerabilities, threats, and exploits;
- D. Demonstrate configuration of ACL and NAT; and
- E. Discuss system scalability and automation and QoS.

To achieve the learning outcomes, the student will or will be able to:

(The letter designations at the end of each statement refer to the learning outcome(s).)

1. Explain how single-area OSPF operates in both point-to-point and broadcast multi-access networks (A, B);
2. Verify single-area OSPFv2 in both point-to-point and broadcast multi-access networks (A, B);
3. Explain how vulnerabilities, threats, and exploits can be mitigated to enhance network security (C, D, E);
4. Explain how ACLs are used as part of a network security policy (C, D, E);
5. Implement standard IPv4 ACLs to filter traffic and secure administrative access (C, D);
6. Configure NAT services on the edge router to provide IPv4 address scalability (C, D);
7. Explain how WAN access technologies can be used to satisfy business requirements (A, E);
8. Explain how VPNs secure site-to-site and remote access connectivity (C, E);
9. Explain how networking devices implement QoS (B, E);
10. Implement protocols to manage the network (B, D);
11. Explain the characteristics of scalable network architectures (E);

12. Troubleshoot enterprise networks (B, D);
13. Explain the purpose and characteristics of network virtualization (E) and;
14. Explain how network automation is enabled through RESTful APIs and configuration management tools (E).

Course Requirements:

- To pass the course, student must achieve a course average of 70% or above.
- Students must have access to a computer (not mobile device), Microsoft Office, and the Internet to complete the assignments. Computer, software, and the Internet are available to students on campus during scheduled computer lab times and in the Learning Commons located in the BPCC Library.
- Students are required to use BPCC's LMS and are encouraged to use the BPCC Library to research topics and employment opportunities.

Course Grading Scale:

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

Attendance Policy:

Each student is expected to attend class regularly; excessive unexcused absences constitute grounds for suspension. Refer to the student handbook for [Attendance Policy](#).

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams and/or clinical fees.

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Coordinator for SECTION 504 AND ADA
Angie Cao, Student and Disability Services Specialist
Disability Services, F-254
6220 East Texas Street
Bossier City, LA 71111
Phone: 318-678-6511
Email: acao@bpcc.edu
Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Equity/Compliance Coordinator
Teri Bashara, Director of Human Resources
Human Resources Office, A-105
6220 East Texas Street
Bossier City, LA 71111
Phone: 318-678-6056
Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.