

Bossier Parish Community College  
Master Syllabus

**Course Prefix and Number:** CTEC 155

**Credit Hours:** 3-3-0

**Course Title:** Network Essentials

**Course Prerequisites:** None

**Textbook(s):** CompTIA CertMaster Learn for Network+ (N10-008); ISBN: 978-1-64274-379-1 and CompTIA CertMaster Labs for Network+ (N10-008); ISBN: 978-1-64274-381-4

**Course Description:** Develop fundamental networking skills including an understanding of network hardware, installation, security, and troubleshooting in a corporate environment. Through classroom and hands-on activities, learn how computers exchange information and how the Internet functions. In addition, this class will help students gain the skills required for the nationally recognized CompTIA Network+ certification. This course is a required course for the NSA/DHS KU alignment for the CAE-CDE designation.

**Learning Outcomes:**

At the end of this course, the student will:

- A. demonstrate a basic knowledge of networking terms used in the field;
- B. configure basic networking on a windows-based platform;
- C. recognize and correct common networking problems; and
- D. demonstrate an understanding of basic network security.

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 the functions and applications of various network devices (A);
- 2. compare and contrast the use of networking services and applications (A);
- 3. install and configure networking services/applications (B);
- 4. explain the characteristics and benefits of various WAN technologies (A);
- 5. install and properly terminate various cable types and connectors using appropriate tools (B);
- 6. differentiate between common network topologies (A);
- 7. differentiate between network infrastructure implementations (A);
- 8. given a scenario, implement and configure the appropriate addressing schema (A,B);
- 9. explain the basics of routing concepts and protocols (A);
- 10. identify the basic elements of unified communication technologies (A);
- 11. compare and contrast technologies that support cloud and virtualization (A);
- 12. given a set of requirements, implement a basic network (A,B);
- 13. given a scenario, use appropriate monitoring tools (B);
- 14. given a scenario, analyze metrics and reports from monitoring and tracking performance tools (C);
- 15. given a scenario, use appropriate resources to support configuration management (B,C);
- 16. explain the importance of implementing network segmentation (A);
- 17. given a scenario, install and apply patches and updates (B);
- 18. given a scenario, configure a switch using proper features (B);
- 19. install and configure wireless LAN infrastructure and implement the appropriate technologies in support of wireless capable devices (B);
- 20. compare and contrast risk related concepts (A,D);

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21. compare and contrast common network vulnerabilities and threats (A,D);
22. given a scenario, implement network hardening techniques (D);
23. compare and contrast physical security controls (D);
24. given a scenario, install and configure a basic firewall (B,D);
25. explain the purpose of various network access control models (A,D);
26. summarize basic forensic concepts (D);
27. given a scenario, implement network troubleshooting methodology (C);
28. given a scenario, analyze and interpret the output of troubleshooting tools (C);
29. given a scenario, troubleshoot and resolve common wireless issues (C);
30. given a scenario, troubleshoot and resolve common copper cable issues (C);
31. given a scenario, troubleshoot and resolve common fiber cable issues (C);
32. given a scenario, troubleshoot and resolve common network issues (C);
33. given a scenario, troubleshoot and resolve common security issues (C);
34. given a scenario, troubleshoot and resolve common WAN issues (C);
35. analyze a scenario and determine the corresponding OSI layer (A);
36. explain the basics of network theory and concepts (A);
37. given a scenario, deploy the appropriate wireless standard (A,B);
38. given a scenario, deploy the appropriate wired connectivity standard (A,B);
39. given a scenario, implement the appropriate policies or procedures (A,B);
40. summarize safety practices (A);
41. given a scenario, install and configure equipment in the appropriate location using best practices (B);
42. explain the basics of change management procedures (A);
43. compare and contrast ports and protocols (A); and
44. given a scenario, configure and apply the appropriate ports and protocols (B).

### **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.

### **NICE Framework Categories:**

Operate and Maintain (OM)    Analyze (AN)    Collect and Operate (CO)

### **Specializations:**

- Data Security Analysis
- Digital Forensics
- Health Care Security
- Industrial Control Systems – SCADA Security
- Secure Mobile Technology
- Secure Telecommunications
- Secure Cloud Computing
- Secure Embedded Systems
- Network Security Engineering

- Network Security Administration

**CAE Knowledge Unit Mapping:**

- Basic Networking (BNW)
- Digital Communications (DCO)
- Network Technology and Protocols (NTP)

**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.

**Nondiscrimination Statement:** Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

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