

**COURSE OUTLINE**

**Course:** 11111 NETWORK SECURITY

**Total Course Hours:** 180.00

**CBEDS Title:** NETWORK SECURITY

**CBEDS #:** 2458

**Job Title(s):**

Network Support Specialist, Network Control Technician, Hardware/Telecomm Field Support Technicians, LAN/WAN

**Prerequisites:**

Recommend Computer Repair and/or A+ Certification

**Course Description:**

This course prepares students for further study in specialized computer/network security fields. Students will learn the purpose and goals of network security policies, the need for authentication, how to identify and explain the different types of attacks that affect the confidentiality of networks. This course will also introduce the student to the topics of web security, virtual private networks, and intrusion detection. Students will develop skills that allow them to identify network vulnerabilities and how to safeguard against them. Particular emphasis is taken in administration and troubleshooting techniques that include decision-making and problem-solving techniques in applying science, mathematics, communication, and social studies concepts.

Integrated throughout the course are Academic and CTE standards, which include safety, communication, technology, ethics, career planning and other employability skills.

Hours	
Class	OJT

**Occupational Competencies**

1-7 on the Course Outline are generic to all BVROP courses and include the BVROP Student Outcomes

3.00	
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**1 ORIENTATION**

- A Identifies and discusses course objectives and competencies.
- B Discusses ROP Student Outcomes.
- C Explains class attendance and behavior objectives.

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**2 HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT**

- A Describes accident procedure.
- B Demonstrates appropriate safety practices (e.g. bending, lifting, etc.).
- C Demonstrates knowledge of classroom procedures and drills (e.g. earthquake, fire and emergency).

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**3 ETHICS AND LEGAL RESPONSIBILITIES**

- A Defines sexual harassment and discusses tactics for handling harassment situations.
- B Applies appropriate workplace behavior and standards.

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**4 LEADERSHIP AND TEAMWORK**

- A Describes the characteristics and benefits of teamwork and leadership.
- B Demonstrates ability to make appropriate decisions.
- C Works well with others and gives/takes constructive criticism.

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| 15.00 |  | <b>5</b> | <b><u>CAREER PLANNING</u></b>   | <ul style="list-style-type: none"> <li>A Prepares a finished, professional portfolio showing the best work that has been completed during the class.</li> <li>B Locates job opportunities through the use of want-ads and placement agencies.</li> <li>C Visits at least one facility related to area of training and observes jobs performed.</li> <li>D Completes a job application correctly.</li> <li>E Prepares for and critiques a simulated employment interview.</li> <li>F Discusses employee benefits and rights as related to the specific occupational job area including gender equity and equal opportunity.</li> <li>G Identifies acceptable procedures to leave a job.</li> <li>H Applies for a scholarship.</li> <li>I Completes a professional resume.</li> <li>J Demonstrates appropriate personal grooming and dress.</li> </ul>   |
| 3.00  |  | <b>6</b> | <b><u>COMMUNICATION</u></b>     | <ul style="list-style-type: none"> <li>A Uses effective workplace conversation.</li> <li>B Reads and interprets written information and directions.</li> <li>C Practices various forms of written communication appropriate to the occupation.</li> </ul>  |
| 5.00  |  | <b>7</b> | <b><u>STUDENT OUTCOMES</u></b>  | <ul style="list-style-type: none"> <li>A Demonstrates Occupational Specific, Communication and Critical Thinking Skills</li> <li>B Demonstrates Responsible Work Ethics</li> <li>C Demonstrates Career/Employment Literacy</li> <li>D Demonstrates Effective Use of Technology</li> </ul>  |
| 15.00 |  | <b>8</b> | <b><u>SECURITY OVERVIEW</u></b> | <ul style="list-style-type: none"> <li>A Understands network security</li> <li>B Security threats: <ul style="list-style-type: none"> <li>1. Understanding data integrity</li> <li>2. Working with confidentiality</li> <li>3. Evaluating availability</li> </ul> </li> <li>C Goals of network security: <ul style="list-style-type: none"> <li>1. Eliminating theft</li> <li>2. Determining authentication</li> <li>3. Controlling secrets</li> </ul> </li> <li>D Creating a secure network strategy: <ul style="list-style-type: none"> <li>1. Analyzes human factors and knowing your weakness</li> <li>2. Limits access and achieving security through persistence</li> <li>3. Understand perimeter security.</li> <li>4. Setting up firewalls and securing web/file servers</li> </ul> </li> <li>E Creating a secure network strategy (continued) <ul style="list-style-type: none"> <li>1. Selects encryption</li> <li>2. Understands intrusion detection systems</li> </ul> </li> </ul> |
| 10.00 |  | <b>9</b> | <b><u>AUTHENTICATION</u></b>    | <ul style="list-style-type: none"> <li>A Explains how to setup usernames and passwords</li> <li>B Understands how Kerberos work</li> <li>C Sets up challenge handshake authentication</li> <li>D Demonstrates how to use security tokens</li> <li>E Explains biometrics</li> </ul>   |

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| 10.00 |  | <p><b>10 <u>ATTACKS AND MALICIOUS CODE</u></b></p> <ul style="list-style-type: none"> <li>A Describes denial of service attacks</li> <li>B Describes how to avoid the ping of death</li> <li>C Evaluates what is spoofing:             <ol style="list-style-type: none"> <li>1. IP address spoofing</li> <li>2. ARP poisoning</li> <li>3. Web spoofing</li> <li>4. DNS spoofing</li> </ol> </li> <li>D Understands man in the middle attacks</li> <li>E Considers social engineering.</li> <li>F Recognizes attacks against encrypted data</li> </ul> |
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| 5.00 |  | <p><b>11 <u>REMOTE ACCESS</u></b></p> <ul style="list-style-type: none"> <li>A Describes Ethernet 802.1x protocols             <ol style="list-style-type: none"> <li>1. Telnet</li> </ol> </li> <li>B Discusses virtual private networks             <ol style="list-style-type: none"> <li>1. VPN options</li> <li>2. VPN drawbacks</li> </ol> </li> <li>C Identifies point-to-point tunneling protocols</li> <li>D Discusses telecommuting vulnerabilities</li> </ul> |
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| 5.00 |  | <p><b>12 <u>EMAIL</u></b></p> <ul style="list-style-type: none"> <li>A Secures email with encryption</li> <li>B Demonstrates how secure email works</li> <li>C Discusses email vulnerabilities</li> <li>D Explains spam</li> <li>E Identifies hoaxes and chain letters</li> </ul> |
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| 5.00 |  | <p><b>13 <u>WEB SECURITY</u></b></p> <ul style="list-style-type: none"> <li>A Demonstrates setting up SSL and TLS</li> <li>B Demonstrates how to use HTTPS</li> <li>C Explains instant messaging</li> <li>D Understands vulnerabilities of web tools</li> </ul> |
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| 10.00 |  | <p><b>14 <u>DIRECTORY AND FILE TRANSFER SERVICE</u></b></p> <ul style="list-style-type: none"> <li>A Discusses directory services</li> <li>B Understands file transfer services</li> <li>C Understands how to secure file transfers</li> <li>D Analyzes file security</li> </ul> |
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| 5.00 |  | <p><b>15 <u>WIRELESS AND INSTANT MESSAGING</u></b></p> <ul style="list-style-type: none"> <li>A Explains the alphabet soup of 802.11</li> <li>B Discusses WAP 1.x and WAP 2.0</li> <li>C Conducts a wireless site survey</li> <li>D Discusses instant messaging</li> </ul> |
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| 15.00 |  | <p><b>16 <u>DEVICES</u></b></p> <ul style="list-style-type: none"> <li>A Understands the different types of firewalls</li> <li>B Understands how to use a router</li> <li>C Discusses the importance of using switches</li> <li>D Demonstrates setting up wireless network</li> <li>E Demonstrates configuring a modem</li> <li>F Discusses remote access services</li> <li>G Understands networking monitoring and diagnostics</li> <li>H Identifies mobile devices</li> </ul> |
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| 5.00 |  | <b>17 <u>MEDIA AND MEDIUM</u></b> |
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- A Understands transmission media
  - B Understands securing transmission media
  - C Describes using storage media
  - D Discusses preventing a catastrophic loss
  - E Discusses storing and destruction of media

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| 10.00 |  | <b>18 <u>NETWORK SECURITY TOPOLOGIES</u></b> |
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- A Understands perimeter security topologies
  - B Understands use of a DMZ
  - C Demonstrates the set up of network address translation
  - D Discusses tunneling protocols
  - E Discusses what virtual local area networks are.

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| 10.00 |  | <b>19 <u>INTRUSION DETECTION</u></b> |
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- A Understands the value of intrusion detection
  - B Identifies network-based and host-based IDS
  - C Discusses active detection and passive detection
  - D Discusses incident response

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| 10.00 |  | <b>20 <u>SECURITY BASELINES</u></b> |
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- A Designs OS/NOS hardening
  - B Discusses locking down the file system
  - C Designs network hardening
  - D Discusses enabling and disabling of services and protocols
  - E Discusses application hardening

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| 10.00 |  | <b>21 <u>CRYPTOGRAPHY</u></b> |
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- A Understands algorithms
  - B Discusses symmetric versus asymmetric algorithms
  - C Understands the concepts of using cryptography
  - D Discusses setting up certificates

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| 5.00 |  | <b>22 <u>PHYSICAL SECURITY</u></b> |
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- A Discusses physical controls
  - B Discusses technical controls

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| 5.00 |  | <b>23 <u>DISASTER RECOVERY AND BUSINESS CONTINUITY</u></b> |
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- A Explains the business continuity
  - B Determining the disaster recovery planning process
  - C Sets up policies and procedures

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| 10.00 |  | <b>24 <u>COMPUTER FORENSICS</u></b> |
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- A Introduction to computer forensics
  - B Describes risk management
  - C Discusses how to get further education and training.
  - D Understands analyzing audits
  - E Discusses how to produce proper documentation

**TOTAL HOURS**

Class	OJT	Course
180.00	0.00	180.00