**CTE Course Description and Standards Crosswalk**

|  |  |
| --- | --- |
| **Course Information** | |
| Course Name | N+ |
| Course Number | BB825 |
| Number of High School Credits | .5 |
| Sequence or CTEPS (You must first have the Sequence or CTEPS entered into the  EED-CTE system.) | Information Technician, Support Technician |
| Date of district Course Revision | February 2014 |
| **Career & Technical Student Organization (CTSO)** | |
| CTSO embedded in this sequence | BPA |
| **Occupational Standards** | |
| Source of Occupational Standards | CompTIA Network + Standards |
| Names/Numbers of Occupational Standards | Network+ (N10-005) |
| **Registration Information** | |
| Course Description (brief paragraph – as shown in your student handbook or course list) | The purpose of the course is to provide the student with the equivalent knowledge of an entry level network administrator with 9-12 months of experience. The course prepares the student to obtain the CompTIA’s Network+ certification. |
| Instructional Topic Headings (please separate each heading by a semi-colon) | Identifying network cable and network types; Identifying common network standards; Selecting and installing network interface cards; Identifying wired and wireless network components; Setting up a wired or wireless network; Managing static and IP addressing; Managing network protocols; Configuring network security; Managing network traffic; Configuring remote access to a network; Troubleshooting common network issues |
| **Summative Assessments and Standards** | |
| Technical Skills Assessment (TSA) | Network+ (N10-005) Examination |
| Course addresses: |  |
| New Alaska ELA and Math Standards | Y |
| Alaska Cultural Standards | Y |
| All Aspects of Industry (AAI) | Y |
| Core Technical Standards | Y |
| Employability Standards | Y |
| **Employability Standards** | |
| Source of Employability Standards | State of Alaska |
| **Tech Prep** | |
| Current Tech Prep Articulation Agreement? (Y/N) | Y |
| Date of Current Agreement | Dec. 2014 |
| Postsecondary Institution Name | AVTEC- Alaska’s Institute of Technology |
| Postsecondary Course Name | Introduction to Networks |
| Postsecondary Course Number | IT 107 |
| # of Postsecondary Credits | 4 credits |

**Additional CTE Course Information**

|  |  |
| --- | --- |
| **Author** | |
| Course developed by | Dan Bohrnsen |
| Course adapted from | Previous Edition |
| Date of previous course revision | 11/1998 |
| **Course Delivery Model** | |
| Is the course brokered through another institution or agency? (Y/N) | Yes |

|  |
| --- |
| **Standards Alignment** |

| **Student Performance Standards**  **(Learner Outcomes or Knowledge & Skill Statements)** | **Specific Occupational Skills Standard** | **Common Technical Core Standards** | **New**  **Alaska ENG/LA Standards** | **New**  **Alaska**  **Math**  **Standards** | **Alaska Cultural**  **Standards** | **Employability/ Career Readiness Standards** | **All Aspects of Industry/ Systems** | **Assessment** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cables and Connectors:** Identify network cables by sight or name (Twisted Pair, Coaxial, Straight-through, Crossover, Console)  Identify network cable speed capabilities by name (10BaseT, 100BaseT, 1000BaseT, 10GBaseT)   Identify network connectors by sight or name (RJ-11, RJ-45, F Type, Serial)   Given a scenario and networking requirements, select and install cables for communication between computers and networking devices. | Network+ (N10-005) 2.6, 3.1, 3.2, 1.0, 2.0, 3.8, 4.2, 1.2, 1.3, 1.6, 2.1, 1.4, 3.7 | L.9- 12.1.a-b | A-REI.2 N-Q.1 | B2,4 | A2,5 | Technical Skills | Technical Skills Technology | CompTIA Network+ Cert. |
| **Wired Networking:** Identify network interface cards and motherboard expansion slots by name or sight.   Given a scenario where a new networking card is required in a new or existing computer, select and install the appropriate networking card.   Identify wired networking devices by name or sight.  Given a scenario where computers must communicate within a wired network, select and install the appropriate networking device(s).   Given a scenario where computers must communicate with two or more wired networks, select and install the appropriate networking device(s).   Given a scenario where a VoIP implementation is required, select and install the appropriate networking devices and cables. | Network+ (N10-005)  2.6, 3.1, 3.2, 1.0, 2.0, 3.8, 4.2, 1.2, 1.3, 1.6, 2.1, 1.4, 3.7, 5.5, 3.4, 3.5, 5.2, 5.3 | IT-NET 1,2,3,4,5 | L.9- 12.1.a-b  L.9-12.3a  L.9-12.6 RST.9- 12.4A | A-REI.2 N-Q.1 | B2,4 | A2,5 | Technical Skills Technology | CompTIA Network+ Cert. |
| **Wireless Networking:**  Given a scenario where computers must communicate within a wireless network, select and install the appropriate networking devices.   Given a Windows system, configure a wireless network connection to use the same encryption standard and authentication as configured on a wireless access point.  Given a Windows system, add or update a wireless profile to automatically connect to a wireless network.  Given a scenario and a Windows system, prioritize wireless profiles to meet end-user requirements. | Network+ (N10-005) 2.2, 3.7, 3.3, 5.1, 5.4, | IT-NET 1,2,3,4,5 | L.9- 12.1.a-b  L.9-12.3a  L.9-12.6 RST.9- 12.4A | A-REI.2 N-Q.1 | B2,4 | A2,5 | Technical Skills Technology | CompTIA Network+ Cert. |
| **Network Connection Configuration**: Identify and select valid IP addresses and classful and classless subnet masks for network connections.  Given a Windows system, configure static IP address information on a network connection for communication within a network.  Given a Windows system, configure the network connection for communication outside of the local network.  Given a Windows system, configure the network connection to use DHCP for IP configuration.  Given a Windows system, configure the network connection to query DNS servers.  Given a Windows system, configure an alternate IP configuration on a network connection.   Given a Windows system, configure the network connection to share an Internet connection to meet end-user requirements. | Network+ (N10-005) 3.5, 1.6, 1.3, 1.1, 1.2, 2.6, 1.3, 2.3, 1.7 | IT-NET 1,2,3,4,5 | L.9- 12.1.a-b  L.9-12.3a  L.9-12.6 RST.9- 12.4A | A-REI.2 N-Q.1 | B2,4 | A2,5 | Technical Skills Technology | CompTIA Network+ Cert. |
| **Network Services**: Given a scenario and a network configuration, identify necessary networking protocols and services.  Identify UDP and TCP ports of common networking protocols.  Given a scenario and network requirements, identify public and private interfaces and addresses for a NAT implementation.  Given a scenario and network requirements, identify and select the DHCP scope, reservations, and options to meet network | Network+ (N10-005) 1.6, 1.1, 1.2, 1.3, 2.3, 2.6, 1.7, 1.4, 2.1, 5.5, 1.9 | L.9- 12.1.a-b | A-REI.2 N-Q.1 | B2,4 | A2,5 | Technical Skills | Technical Skills Technology | CompTIA Network+ Cert. |
| **Network Security**: Given a scenario and security requirements, select protocols to manage remote networking devices.  Given a Windows system, configure the basic Windows Firewall by opening the necessary ports based on running services and applications.  Identify specific security features included on networking devices.  Given a scenario, select and install networking devices to meet networking security requirements. | Network+ (N10-005) 5.4, 1.5, 2.1, 4.1, 5.2, 5.5, 2.6, 1.4, 5.3, 1.6, 4.4, 5.6 | IT-NET 1,2,3,4,5 | L.9- 12.1.a-b  L.9-12.3a  L.9-12.6 RST.9- 12.4A | A-REI.2 N-Q.1 | B2,4 | A2,5 | Technical Skills Technology | CompTIA Network+ Cert. |
| **Network Management:** Given a scenario, select and install networking devices to prioritize network traffic, reduce broadcast or collision domains, and separate voice and data traffic.  Given a Windows system, enable and configure Remote Desktop to meet end-user requirements. | Network+ (N10-005) 4.5, 1.6, 5.2, 1.4, 2.1, 4.3, 4.4, 1.2, 3.7, 4.1, 4.6 | IT-NET 1,2,3,4,5 | L.9- 12.1.a-b  L.9-12.3a  L.9-12.6 RST.9- 12.4A | A-REI.2 N-Q.1 | B2,4 | A2,5 | Technical Skills Technology | CompTIA Network+ Cert. |
| **Network Troubleshooting:** Use and interpret the output from the **ipconfig** command to verify and troubleshoot the existing network configuration.  Use and interpret the output from the **tracert** command to identify default gateway, routing path and IP information for internetwork traffic.  Use and interpret the output from the **ping** command to identify and troubleshoot the logical connectivity between two or more networking devices.  Given a scenario, select the appropriate tool to troubleshoot physical connectivity problems. | Network+ (N10-005) 1.6, 1.8, 4.3, 2.5, 3.6, 3.8, 4.2, 2.4, 5.1 |  |  |  |  |  |  | CompTIA Network+ Cert. |
| Encourage CTSO involvement. | BPA State/Nat’l Com  Event # 305 and 310 | BM3,5,6 | L.9-12.6  SL.9-12.6 SL.9- 12.1.a-d |  | B2,3,4 C4  D6  E7,8 | A2,5 | Technical Skills Tec Planning Labor Work Habits | BPA  Competition #’s 305 and 310 |

|  |
| --- |
| **Instructional Resources** |

**List the major instructional resources used for this course: (websites, textbooks, essential equipment, reference materials, supplies)**

<http://www.testout.com>  
<http://www.testout.com/home/educator-resources/instructor-tools/labsim-lesson-plans>  
[http://akcis.org](http://akcis.org/)  
[www.bpa.org](http://www.bpa.org/)   
[www.comptia.org/certification](http://www.comptia.org/certification)  
[www.certiport.com](http://www.certiport.com/)