Arts, Audio/Video Technology and Communications

Pathway: Telecommunications

Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
ARPE01.01	Telecommunications	#5: Principles of Telecommunications Systems	Demonstrate the use of industry-specific terminology, tools and test equipment related to telecommunications.	Define terms utilized in direct, alternating current and digital technology.	Identify terms as utilized in telecommunications.
					Construct AC and DC circuits.
					Use AC and DC terminology.
					Apply logical and systematic approach to troubleshooting network devices.
				Demonstrate use and care of hand and power tools.	Identify hand and power tools.
					Explain use and care of hand and power tools.
					Practice industry-established procedures for use of hand and power tools.
				Demonstrate use and care of test equipment.	Examine varieties of test equipment for specific uses.
					Apply use and care principles to testing equipment.
					Select specific test equipment.
					Use test equipment.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
ARPE01.02	Telecommunications	#6: Advanced Analog and Digital Logic and Circuits	Describe the characteristics of analog and digital technologies applications for telecommunications.	Analyze analog circuit and digital logic devices.	Apply logical and systematic approach to troubleshooting analog and digital devices.
					Construct analog-to-digital and digital-to-analog devices.
					Demonstrate understanding of frequency and spectrum measurements.
				Demonstrate analog circuit test procedures.	Demonstrate how to set-up and operate test equipment for analog circuit tests.
					Use analog circuit test procedures.
				Demonstrate digital signal technology.	Identify digital signal technology.
					Analyze varieties of digital signal technology.
ARPE01.03	Telecommunications	#5: Principles of Telecommunications Systems	Demonstrate installation techniques and processes utilizing telecommunication tools and materials.	Demonstrate knowledge of soldering for fasteners and terminals.	Identify types of soldering for fasteners and terminals.
					Demonstrate use of fasteners and terminals.
					Demonstrate wire-wrapping techniques.
				Explain installation strengths and weaknesses including fiber, coaxial, wireless, copper and other mediums.	Identify installation strengths and weaknesses utilizing a physical layout.
					Define methods for tagging wires and cables of various types.
					Explain testing procedures and terminate as necessary.

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ARPE01.04	Telecommunications	#7: Telecommunications Schematics and Layout	Analyze schematics, diagrams and blueprints using appropriate terms, vocabulary and industry-specific codes and regulations.	Interpret industry-specific codes and regulations.	Analyze codes and regulations.
					Interpret codes and regulations.
					Identify occupationally specific required licenses.
					Demonstrate familiarity with coding and certifying agencies.
				Analyze basic network architecture.	Exhibit knowledge of characteristics of network components.
					Analyze frame types and formats for networks.
					Analyze protocols for basic network architecture.
					Exhibit knowledge of packet-switching techniques.
				Interpret schematics, diagrams, blueprints, and network topology maps.	Identify and use common notations and symbols.
					Explain the meanings of symbols, color codes, acronyms, references and maps.
					Explain use of schematics, diagrams, and blueprints to construct/assemble equipment.
					Interpret point to point network topologies.
				Demonstrate generating technical documentation.	Prepare customer documents used for removal, repair and reinstallation of telecommunications system or components.
					Maintain service documentation library/internal file.
					Demonstrate the ability to document engineering changes.
					Perform complete documentation of maintenance and repair actions.
Code	**Topic**	**Course**	**Knowledge and Skill**	**Performance Element**	**Measurement Criteria**

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ARPE01.05	Telecommunications	#5: Principles of Telecommunications Systems	Apply decision-making and problem-solving techniques to repair and replacement procedures for telecommunications industry.	Demonstrate knowledge of procedures for network equipment repair.	Identify procedures needed for network equipment repair.
					Select industry-specific procedure for equipment repair.
					Demonstrate procedures for equipment repair.
				Analyze replacement procedures considering standard maintenance processes.	Identify replacement procedures considering standard maintenance processes.
					Interpret standard replacement procedures.
					Interpret standard industry-specific procedures for maintenance processes.
ARPE01.06	Telecommunications	#5: Principles of Telecommunications Systems	Apply knowledge of telecommunications to provide service and solve problems for customers.	Examine information related to customer needs and solve customer problems.	Identify information related to customer needs.
					Define the problem-solving method to be utilized.
					Identify the obstacles to solving a problem and meeting the customer's needs.
					Assess each alternative to determine potential solution.
					Select service or problem solving plan related to customer needs.
				Demonstrate expected customer service to meet the intent of state and national guidelines for consumer rights.	Identify state and national guidelines for consumer rights of customers.
					Apply procedures to provide for consumer rights of customers.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Accurately explain data related to problems, time for repairs, and extent of the service required to solve problems.	Explain technical information in terms that the customer understands.
					Apply communication skills with customers involving written, oral, listening and body language.
					Explain information in a timely and accurate manner.
					Explain the product and/or services that best meet the needs of the customer.
ARPE01.07	Telecommunications	#8: Network Applications and Installation	Apply knowledge of telecommunications security.	Demonstrate basic understanding of demands of network security.	Comprehend the need for security.
					Demonstrate understanding of recognized security policies and procedures.
					Apply knowledge of the risks to data security.
				Analyze security risks and how to overcome the problems identified.	Apply knowledge of the risks to telecommunications to identify potential areas of concern.
					Investigate a potential problem and provide alternatives to provide greater security for the telecommunications situation.
ARPE01.08	Telecommunications	#8: Network Applications and Installation	Apply knowledge of network applications.	Apply knowledge of transmission lines and network connectivity.	Exhibit knowledge of the principles and operation of wire and wireless systems.
					Comprehend the procedures and techniques used with wire and wireless technology.
					Apply principles of operations wire and wireless systems.

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			(CONTINUED)	Analyze specific specifications for a facility.	Identify the structure and systems requirements.
					Develop specifications required for a system.
					Analyze installation requirements to identify conflicts.
					Verify specifications and installations requirements.
				Comprehend the standards for communication networks.	Exhibit knowledge of high-speed networks and open system interconnection standards.
					Exhibit knowledge of protocols.
				Comprehend the Local Area Network (LAN) and the Wide Area Network (WAN) systems.	Exhibit knowledge of how Local Area Networks are installed and perform.
					Exhibit knowledge of how vice, data, and video interface in Wide Area Networks.
				Demonstrate installation of a network system.	Identify the components required for network installation.
					Develop an installation plan.
					Apply knowledge of operating systems and telecommunication hardware and software to install a system.
					Apply installation verification processes to ensure network is functioning and operating.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Apply knowledge of troubleshooting for problems.	Exhibit knowledge of potential problem areas and alternative solutions.
					Describe diagnostic tools for use in maintenance and identification of system problems.
					Implement a plan to resolve problem area, identifying the problem, potential solutions, and documentation of resolution.

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