Course Description
TCN0300 | Telecommunications Fundamentals | 3.83 credits
This course introduces students to basic concepts in telecommunications, including safety practices, electrical fundamentals, and industry standards. Students will learn about telecommunications systems architecture, cable types, and basic troubleshooting techniques. The course also covers customer service skills and professional conduct in the telecommunications industry.

Course Competencies
Competency 1: The student will learn to demonstrate knowledge of workplace safety practices and regulations in the telecommunications industry by:
1. Identifying potential hazards in various telecommunications work environments
2. Applying proper safety procedures when working with electrical equipment and systems
3. Utilizing appropriate personal protective equipment (PPE) during telecommunications tasks
4. Implementing industry-standard safety protocols in accordance with telecommunications regulations

Competency 2: The student will learn to apply basic electrical theory to telecommunications systems by:
1. Calculating voltage, current, and resistance in telecommunications circuits using Ohm's Law
2. Analyzing circuit diagrams to understand the flow of electricity in telecommunications systems
3. Measuring electrical parameters using multimeters and other appropriate testing equipment
4. Troubleshooting basic electrical issues in telecommunications equipment by applying fundamental electrical principles

Competency 3: The student will learn to identify and properly use common hand and power tools used in telecommunications by:
1. Selecting appropriate hand and power tools for specific telecommunications tasks and installations
2. Demonstrating proper handling and safety techniques while using common telecommunications tools
3. Maintaining and storing tools according to manufacturer specifications and industry best practices
4. Troubleshooting malfunctioning equipment using specialized diagnostic tools common in the telecommunications field

Competency 4: The student will learn to explain the fundamentals of telecommunications systems architecture by:
1. Illustrating the key components of telecommunications systems architecture through detailed diagrams or models
2. Describing the functions and interactions of various elements within a telecommunications network
3. Analyzing different types of telecommunications architectures to compare their strengths and weaknesses
4. Explaining the flow of data and voice signals through telecommunications systems using appropriate technical terminology

Competency 5: The student will learn to recognize various types of cables and connectors used in telecommunications by:
1. Identifying different types of cables (e.g., coaxial, fiber optic, twisted pair) used in telecommunications systems based on their physical characteristics and applications
2. Distinguishing between various connector types (e.g., RJ45, BNC, SC/LC fiber connectors) and their specific uses in telecommunications networks
3. Selecting appropriate cables and connectors for different telecommunications installations based on project requirements and industry standards

4. Demonstrating proper handling, termination, and testing techniques for various types of telecommunications cables and connectors

Competency 6: The student will learn to demonstrate basic customer service skills and professional conduct by:
1. Communicating effectively with customers, using clear and professional language to explain technical concepts and solutions
2. Responding to customer inquiries and concerns in a timely and courteous manner, demonstrating active listening skills and empathy
3. Presenting a professional appearance and demeanor while interacting with customers and colleagues in various telecommunications work settings
4. Resolving customer issues and complaints by following established protocols and escalation procedures when necessary

Competency 7: The student will learn to explain industry codes of conduct and regulatory compliance by:
1. Interpreting key elements of telecommunications industry codes of conduct and their implications for professional behavior and decision-making
2. Identifying relevant regulatory bodies and their roles in overseeing the telecommunications industry, such as the Federal Communications Commission (FCC)
3. Applying industry-specific ethical guidelines and compliance requirements to various telecommunications scenarios and case studies
4. Demonstrating knowledge of data privacy and security regulations by implementing appropriate measures in telecommunications systems and operations

Competency 8: The student will learn to perform basic troubleshooting on telecommunications equipment by:
1. Diagnosing common issues in telecommunications equipment by systematically analyzing symptoms and using appropriate testing tools
2. Implementing step-by-step troubleshooting procedures to identify and resolve basic problems in telecommunications systems
3. Documenting troubleshooting processes and solutions, creating clear and detailed reports for future reference and knowledge sharing
4. Utilizing manufacturer manuals and technical documentation to guide troubleshooting efforts and ensure proper equipment functionality

Learning Outcomes:
1. Solve problems using critical and creative thinking and scientific reasoning
2. Formulate strategies to locate, evaluate, and apply information