

Technical Training Apprenticeship Curriculum

Program Length 2 years (8 Quarters)

Prerequisites

A general understanding of telecommunication principals and electronic fundamentals. General algebra, technical math and basic electricity are highly recommended. *This course can be customized to meet specific system requirements.*

Course Objectives

This program introduces the student to telecommunication networks used in the electric utility industry. Modules include introductory subjects with network specific testing and maintenance applications. Students are tested at the end of each quarter for subject and equipment competency. Industry, OSHA, and FCC safety standards are included in each module as appropriate. Final written and practical exams are given at the end of each year to measure success job skill performance.

Core Technologies

The following technologies with associated testing applications are embedded in the program.

- AC & DC Electricity
- Analog and Voice Circuits
- Networking & Datacom Fundamentals
- T1 - DS3 – SONET

For more information or a custom quote

PROGRAM COURSE OUTLINES

Introduction to Utility

Telecommunications

- Why Radio in Utilities
- Transmission Medium
- Introduction to Telecommunications
- Company & OSHA Overview
- Grounding and Tag-out Procedures
- Radio Regulation in the US

DC Power Systems

- Introduction to DC Power Systems
 - Rectifiers and Distribution
 - Batteries and Battery Banks
- Battery Safety and Testing
- Bonding and Grounding
- Emergency Power Plants

Protective Relays & Power Metering

- Methods of Protection
- Protective Relaying Fundamentals
 - Currents and Voltages
 - Differential Relaying
 - Relay Zones
 - Faults and Fault Protection
- Metering Power Transmission
- Power Transfer and Loss on Transmission Systems

SCADA Systems

- SCADA Fundamentals
- System Operation
 - SCADA Masters
 - RTU's
- Communication via MAS

Telephone Systems

- Telephone Switching
- Cable and Wiring Standards
- Fiber Networks
 - Fundamentals – SONET
 - Operation & Testing
- Trunks and Carriers
- Testing with Telephone Carriers

Microwave Radio Systems

- Microwave Fundamentals
- Microwave Equipment
- Multiplexing Equipment
- Antennas and Structures
- Network Testing Applications

Power Line Carrier Systems

- Power Line Carrier Fundamentals
- Substation devices
 - Traps
 - Tuners
- Grounding
- Testing

Mobile Radio Systems

- Principals of Mobile Wireless Communication
- Dispatching Operations
- Base Station Control
- Mobile Operations, Maintenance
- Mobile Radio Safety

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