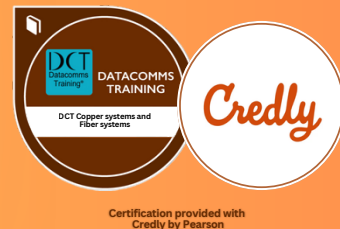


# DCT COPPER SYSTEMS AND FIBER SYSTEMS



The DCT Structured Cabling course introduces multi-vendor structured cabling standards for copper and fiber installations, equipping participants with essential skills for modern network infrastructure.

**Duration: 5 Days**

**Course Code: DCT - INFR- SC**

## Copper systems - Overview:

DCT Structured cabling (Copper) is a unique multi-vendor course that introduces Structured Cabling standards for Copper installations. The class-based training offers advanced hands-on experience labs to prepare students for any deployment scenarios for structured cabling

### Objectives:

Delegates are equipped with the knowledge, skills, and expertise to competently undertake the installation of the Structured Cabling Solutions Course

### Pre-requisite

- Those attending this course require basic understanding of network topology.

### Certificates:

- Giganet Certified Installer
- Siemon RI (Registered Installer)
- DCT Certified Installer

### Target Audience

Network Engineers

### Labs

Terminations, Troubleshooting and testing on: • Category 6 UTP Cabling system • Category 6A FTP Cabling system • Trouble shooting and Testing of both Cat 6 and Cat 6A cabling with LAN tester and basic Fluke performance tester.

### Certificates:

- Giganet Certified Installer (Copper)
- Siemon Installer (RI)
- DCT Certified Installer (Copper)

## Course Content

### Introduction to Balanced Twisted-Pair Cables Connecting Hardware

- Telecommunications Outlets
- Patchpanels
- Wiring Blocks

### Cabling Standards

- Telecommunications cabling standards.
- Advantages of Standards
- Standards bodies
- ANSI/TIA/EIA Standards
- ISO/IEC Standards
- CENELEC Standards
- Cable categories/Classes
- Horizontal Cabling
- Horizontal Channels
- Channel Lengths
- Horizontal Pathways
- Maximum Pathway Fill

### Backbone Cabling

- Backbone Cabling Systems
- Backbone Cabling Distance Limitations

### Work Area Cabling

- Work Area Components
- Telecommunications Outlets
- Work Area Cable Termination

### Telecommunications Spaces

- Equipment Rooms
- Telecommunication Rooms
- Entrance Facilities

### Electromagnetic Interference (EMI)

- What is EMI
- Power Separations/ Shielding

### Installation Practices

- Cable Management
- Bend Radius
- Cable Stacking Height
- Cable Stress
- Cable Support
- Rack Clearance
- Equipment Locations
- Mounting Connecting Hardware
- Earthing And Bonding
- Cable Pulling
- Cable Termination

### Testing

- Permanent Link Testing
- Channel Testing
- Test Parameters

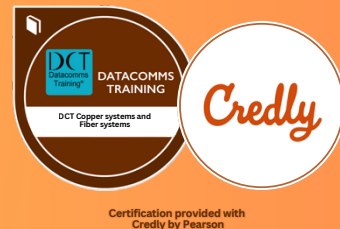
### Administration

- Labels
- Records
- Administration Classes

### Warranties

- What is warranty?
- Test Results
- Warranty Registration form

# DCT COPPER SYSTEMS AND FIBER SYSTEMS



The DCT Structured Cabling course introduces multi-vendor structured cabling standards for copper and fiber installations, equipping participants with essential skills for modern network infrastructure.

**Duration: 5 Days**

**Course Code: DCT - INFR- SC**

## Fiber systems - Overview:

DCT Structured cabling (Copper) is a unique multi-vendor course that introduces Structured Cabling standards for Fiber installations. The class-based training offers advanced hands-on experience labs to prepare students for any deployment scenarios for structured cabling.

### Objectives:

Delegates are equipped with the knowledge, skills, and expertise to competently undertake the installation of the Structured Cabling Solutions Course.

### Pre-requisite

- Those attending this course require basic understanding of network topology

### Certificates:

- Giganet Certified Installer
- Siemon RI (Registered Installer)
- DCT Certified Installer

### Target Audience

Network Engineers

### Labs

Terminations, splicing of fiber, Troubleshooting, and testing on: Fiber cabling with VFL, Lash light and basic Fluke performance tester.

### Certificates:

- Giganet Certified Installer ( Fiber )
- Siemon Installer ( RI )
- DCT Certified Installer ( Fiber )

## Course Content

### Introduction to Fibre Optics

- What are Optical Fibres?
- Optical Fibre Construction
- Fibre Sizes

### Optical Fibre Transmission

- Fibre optic transmission systems and data links
- Transmitting and receiving devices
- Transmission over different types of fibre
- Electromagnetic Spectrum and Wavelengths
- Fibre Optic Transmission Windows

### Typical Types of Fiber Optic Cables

- Aerial Fiber Optic Cable
- Underground Fiber Optic Cable
- Undersea Fiber Optic Cable
- Direct Buried Fiber Optic Cable
- Ribbon Fiber Optic Cable
- Loose Tube Fiber Optic Cable
- Armored Fiber Optic Cable
- Newer Fiber Optic Cable Types

### Fibre Splicing and Terminating

- What is fibre splicing?
- Fusion Splicing
- Mechanical Splicing

### Fiber Optic Connectivity

- Connectors
- Adapters
- patch cords
- patch panels

### Fiber Optic Distribution Systems

- Fiber enclosures
- Fiber distribution cabinets
- Fiber distribution frames
- Fiber patch panels
- Splice trays
- Slack spools
- Patch cables

### Inspecting and Cleaning Optical Fiber Connectors

- Core alignment.
- Physical contact.
- Pristine connector interface

### Signal Degradation

- Attenuation loss
- Absorption
- Scattering
- Bending loss
- Dispersion loss
- Coupling loss

### Fiber Optic Distribution Systems

- Fiber enclosures
- Fiber distribution cabinets
- Fiber distribution frames
- Fiber patch panels
- Splice trays
- Slack spools
- Patch cables

### Inspecting and Cleaning Optical

- Fiber Connectors
- Core alignment.
- Physical contact.
- Pristine connector interface

### Designing Fibre Optic Network

- Fiber Type
- Network Topology
- Fiber Count
- Scalability
- Redundancy
- Implementation

# Course Outline

## Fibre Optic Safety

- Know the standards that apply to your work
- Keep it clean • Understand the chemicals you're handling
- Be aware of your environment
- Use the right tools

## **Fibre Optic Cable Installation**

- Conduct a thorough site survey prior to cable placement
- Develop a cable pulling plan
- Follow proper procedures
- Do not exceed cable minimum bend radius
- Do not exceed cable maximum recommended load
- Document the installation.

## **Fibre Optics Testing (Fluke DSX)**

- Types of test required
- Flashlight and Visual Fault Locator
- Fibre Microscope
- Attenuation testing using Light Source and Power Meter
- Channel Attenuation Calculation
- Optical Time Domain Reflectometer

## The Best Practices for Troubleshooting Fiber Optic Testing Issues

- Inaccurate Test Results
- Prevention Strategies (inaccurate results)
- Troubleshooting Techniques (Inaccurate results)
- High Optical Power Loss
- Prevention Strategies (High Optical Power Loss)
- Troubleshooting Techniques (High Optical Power Loss)
- Excessive Return Loss
- Prevention Strategies (Excessive Return Loss)
- Troubleshooting Techniques (Excessive Return Loss)