



Training Offer

Catalogue 2005



Introduction,

"The transmission quality of a cabling installation depends on the cabling system used, as well as the installation itself."

Nexans Cabling Solutions has elaborated its training program. Trainings are given at the Competence Centre in Brussels, as well as on demand at your premises worldwide or in our Local Training centres in different regions.

No matter what your level is, we'll find the best training program meeting all of your needs. The LAN technology evolution requires a wide and varied range of skills. No two projects are the same and our partner's position is important in this business. The aim is to find the synergy between your needs and our training program.

In order to make this "level training" program possible, the trainings have been divided into different modules which are all addressing different topics aimed at different people.

- Installers
- Project Managers
- Designers, Consultants and Architects
- Commercial Staff that would like to improve their sales techniques End Users
- Anybody involved in cabling that would like to improve his knowledge and skills in this domain.

Trainees can obtain a "Nexans Cabling Solutions Expert level certification" when they succeed in the 3-day Expert training.

It is clear that a new VAR, Distributor, or Certified System Installer will be required to succeed in the Expert training. If the new partner has no experience it is recommended that he will first attend the basic training. If the partner has previous experience, he can directly follow the Expert training.

Training Modules Overview

Commercial:

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(*) Modules part of the 3 Day Expert Training Program

To apply for a training, please contact alain.geypens@nexans.com or your local sales contact.



1. Premises Cabling Standards(*)

Contains:

Introduction to Data Cabling

Universal Cabling: Concept and evolution

Standardization:

- Comparison of the different norms
- What, Why, impact on cabling
- ISO/IEC 11801, Cenelec 50173, EIA/TIA 568-A/B
- Categories versus Class performances
- Configuration model
- Evolution

Horizontal channel design: - 2, 3 and 4 connector channels
 - Length calculation of a channel

Horizontal & Vertical Signal routing: - Voice Signal routing for Analog, Digital or VoIP
 - Data Signal routing Copper and Fibre
 - Entrance facilities

Time required: 4:00h

This module enables you to:

- *Understand requirements and philosophy of the Cabling System Standards*
- *Identify components in a structured cabling system*
- *Identify vertical and horizontal routing of data and voice signals.*
- *Calculate maximum distances for horizontal channel*
- *Define requirements for a Structured Cabling System on Campus, Riser and Horizontal links.*

Prerequisites: none



2. Parameters for Copper Cabling(*)

Contains:

Technical Parameters

Megabits versus Megahertz

Data applications: Ethernet, Token Ring, Fast Ethernet, ATM,

Gigabit Ethernet, Encoding systems

IL, NEXT, ACR

PS specs, FEXT, RL, NVP, Delay Skew

Alien crosstalk parameters, SNR

Coupling attenuation

Their influence on cabling installation practices

Time required: 2:00h

This module enables you to:

- *Analyse Test results*
- *Identify errors in a copper link*
- *Create high performance copper links*

Prerequisites: Knowledge of Standards on Copper Cabling



3. Nexans Copper Cabling Solutions(*)

Contains:

E-ssential range
 Why Systems?
 LANmark 5, 6 and 7 Systems
 GG45 Cat-7
 When and how to use each Cabling System Class?
 The Nexans Warranty Programme
 Voice range
 Structural Hardware
 Cabinets
 Services

Time required: 2:00h

This module enables you to:

- *Identify each component in the copper product range*
- *Select a Cabling System according to the end-users needs*
- *Discover unique features of the Nexans Cabling System Products*
- *Be more competitive in the market*

Prerequisites: Knowledge of Standards on Copper Cabling



4. Installation Rules and Guidelines(*)

Contains:

Indoor cabling
 Outdoor cabling
 Fire restrictions
 Numbering and labelling
 Cabinet location
 Earthing and Grounding

- Safety versus EMC
- Requirements for correct Earthing and Grounding

 Administration and documentation

- Master cable schedule
- Floor distributor Cable schedule
- Building cabling plans
- Cabinet Layout
- Nexans Visio Templates

Time required: 2:30h

This module enables you to:

- *Acquire basics on installation practices*
- *Apply installation rules and guidelines during design*
- *Create professional administration documents*
- *Understand requirements from Standards on installation practices*
- *Increase performance in a cabling system*

Prerequisites: Knowledge of Standards on Copper Cabling



5.

Installation Practice & Testing Class D-E Links(*)

Contains:

- Termination of UTP, F¹TP, F²TP, S-FTP, STP copper cables
- How to build high performance Class D and Class E Links
- Installation practices for 2, 3 & 4 Connector links
- LANmark-5 screened and unscreened:
 - PCB termination
 - Snap-in termination
- LANmark-6 screened and unscreened:
 - Snap-in termination
- Earthing and Grounding
- Testing:
 - Using Certified Level III (Cat 6) testers
 - Testing 2, 3 and 4 connector links
 - Calibration, Firmware, Testing limits
 - Analyses of the test results
 - Troubleshooting

Time required: 4:00h

This module enables you to:

- Create high performance copper links
- Decrease installation times
- Test Class D and E links according to the Standards
- Solve problems of failing links

Prerequisites: Knowledge of Cabling Installation Rules and Copper Cabling Parameters



6.

Installation Practice & Testing Class F Links

Contains:

- Termination of LANmark-7 STP copper cables
- GG45 termination practice
- Easy termination tool
- 2, 3 & 4 Connector links
- Testing:
 - Using Certified Level IV (Cat 7) testers
 - Testing 2, 3 and 4 connector links
 - Calibration, Firmware, Testing limits
 - Analyses of the test results
 - Troubleshooting

Time required: 2:00h

This module enables you to:

- Create high performance copper links
- Decrease installation times
- Test Class D and E links according to the Standards
- Solve problems of failing links

Prerequisites: Knowledge of Cabling Installation Rules and Copper Cabling Parameters



7. Optical Fibre Theory and Principles(*)

Contains:

Theoretical Introduction
 Fiber Construction, Fiber types
 Optical windows, Refractive index
 Multimode versus Singlemode
 Step Index, Dispersion and Graded index
 Optical Transmitters:
 - LED, VCSEL, LASER
 - Launch conditions
 Transmission characteristics:
 - Attenuation
 - Bandwidth, dip, maximum link length
 Advantages of Optical Fiber
 Fibre Termination

Time required: 2:00h

This module enables you to:

- Identify Fibre types
- Consider Length restrictions during design
- Identify Components of an optical fibre link
- Define Optical Fibre cabling requirements

Prerequisites: none



8. Nexans Optical Fibre Cabling Solutions(*)

Contains:

LANmark-OF Fibre types
 Application to Length implication
 Cable constructions:
 - Outdoor
 - Indoor
 Modular patch panels, Snap-in Couplers
 Optical Fibre Termination products:
 - Splicing
 - Direct Connectorising
 Patch cords
 Fibre To The Desk Solutions
 The Nexans Warranty Programme

Time required: 2:00h

This module enables you to:

- Identify each component in the Optical Fibre product range
- Select a Cabling System according to the end-users needs
- Discover unique features of the Nexans Cabling System Products
- Be more competitive in the market

Prerequisites: Knowledge of Standards on Optical Fibre Cabling



Fibre Installation Practice on Direct Termination(*)

Contains:

- Fibre Installation Practice
- Recommendations to maintain Duplex OF Channel Polarity
- Patchpanel & Zone Distributionbox:
 - Anaerobic Connectorisation
 - ST, SC, LC on 900µ Fibres
 - ST, SC, LC on 3mm Patchcable
 - Hotmelt connectorisation
 - ST, SC on 900µ Fibres
 - ST, SC on 3mm Patchcable

Time required: 2:00h

This module enables you to:

- Identify each component in the Optical Fibre link
- Maintain Duplex OF Channel Polarity
- Create high performance Fibre links
- Decrease installation times
- Troubleshoot

Prerequisites: Knowledge of Fibre Theory and Principles



Fibre Installation Practice on Fusion Splicing

Contains:

- Fibre Installation Practice
- Recommendations to maintain Duplex OF Channel Polarity
- Fusion Splicing Methods
- Patchpanel & Zone Distributionbox:
 - Organisation of fibres in Splicetrays
 - Protecting splices:
 - Metallic
 - 250µ fibres
 - Heatshrink
 - 250µ & 900µ Fibres

Time required: 2:00h

This module enables you to:

- Identify each component in the Optical Fibre link
- Maintain Duplex OF Channel Polarity
- Create high performance Fibre links
- Decrease installation times
- Troubleshoot

Prerequisites: Knowledge of Fibre Theory and Principles



11.

Testing Optical Fibre Links(*)

Contains:

Parameters

Causes of Attenuation

Optical Budget calculation

Optical Fibre Measurement

Microscope

Power Meter Types

- Power meter principle
- Setting Reference
- Analysing results

OTDR

- Optical Time Domain Reflectometry principle
- Dead zones
- Connections and splices
- Analysing results
- Ghosting

Time required: 4:00h

This module enables you to:

- *Identify each component in the Optical Fibre link*
- *Test Optical Fibre links according to the Standards*
- *Solve problems of failing links*
- *Certify Installations*

Prerequisites: Knowledge of Standards on Optical Fibre Cabling and Fibre Theory



12. Design Training: Project Study

Contains:

Cabling System Concept
 Impact of the Active Equipment
 Horizontal & Vertical Signal Routing
 Interfaces with other systems
 Data Collection
 2 ways: starting from scratch or from an Invitation To Tender (ITT)
 Level of performance
 - Telecom Outlets
 - Backbones
 - Interfaces
 Cabling System Design
 Backbone design
 - Voice, Data copper, Data OF
 Horizontal channel design
 - 2 connector link, Consolidation point, Lengths, Outlets
 Exercise
 Data collection from an Invitation To Tender (ITT)
 Design production
 Analysis and corrections

Time required: 12:00h

This module enables you to:

- *Identify each component in a Universal Cabling System*
- *Consolidate information from a tender*
- *Identify missing information in a tender*
- *Collect all information needed to design a Universal Cabling System*
- *Create professional drawings*

Prerequisites: none



13. Nexans Easy Design Visio Software

Contains:

Software installation
 Discovering the Using Interface
 Analyses of the tabs
 By means of exercise filling out the fields
 Launching the design tool
 Evaluating the created drawings
 Creating a Bill of Material

Time required: 4:00h

This module enables you to:

- *Quickly adapt to the design tool*
- *Learn basics of Visio*
- *Create professional drawings*
- *Create a Bill of Material*

Prerequisites: Knowledge of Standards on Copper and Fibre Cabling



14.

Design Training: Project Engineering

Contains:

Labeling

Identifying Non-NCS components

Scope of work

- Cabling System Infrastructure
- Existing or out of the Scope Of Work
- Routing analysis
- Presence of cables from other systems
- Size check
- Routing up to Cabling System components
- Accessibility
- Included in the Scope Of Work
- Routing
- Containment, Sizing, specific requirements
- Earthing
- Accessibility
- Installation works
- Cabling System products
- Other works
- Project Management Team
- Transportation & Local costs
- Subcontracting

Engineering exercise

Create Bill Of Quantities (BOQ)

- Accessories
- Interfaces with other systems
- Non-NCS components

Time required: 12:00h

This module enables you to:

- Collect all information for before design
- Investigate building site and/or plans
- Specify Scope of Work
- Create a Bill of Quantities

Prerequisites: Knowledge of Standards on Copper and Fibre Cabling



15. Design Training: Project Tendering

Contains:

Files to include in a tender

- BOM – BOQ using Nexans Easy Design
- Pricing
- Design drawings using Nexans Easy Design
- Technical Description and Planning
- NCS & N-NCS data sheets + general docs
- Quality – Safety
- Specific Requirements

Follow up and feedback

- Tender follow up during the decision process

Feedback if awarded:

- First step: from Sales + decision makers
- Second step: from Project Manager during installation phase

Time required: 8:00h

This module enables you to:

- Create all documents for Tender
- Support Sales team on technical details
- Support team during implementation and to use feedback

Prerequisites: Knowledge of Standards on Copper and Fibre Cabling and NED tool



16. Project Management

Contains:

Rules and advises

Project preparation

- Preliminary study of the dossier
- Transfer meeting from Sales & Engineering to PM
- Thorough analysis of the dossier and quotation
- On site pre-installation survey
- Material order and installation works planning

On site quality management (Pictures illustrated)

On site installation

- Kick off
- Installation
- Testing and reception

As-built files, financial results and invoicing

Time required: 8:00h

This module enables you to:

- Manage Project preparation
- Analyse documents and quotations
- Collect information during pre-installation site survey
- Plan Works and Support installation from beginning to end

Prerequisites: Knowledge of Standards on Copper and Fibre Cabling and Project Study, Engineering and Installation Rules and Guidelines