

Certificate In FTTX OSP This training has been developed to provide hands-on design exercises to teach attendees to apply critical issues such as take rate and density to outside plant design. This course covers FTTH network field configurations, design benchmarks, and installation parameters for active Ethernet and PON systems. Attendees will create their own FTTx network designs in classroom break-out sessions, applying the learned objectives to distributed split, centralized split, home run, and point-topoint systems

Introduction to FTTX

- FTTX basics
- Fiber optic transmission
- Basic fiber optic terminology
- Lightwave transmission
- Wavelength allocation chart

FTTH formats

- POLAN
- PON generation

Optical Fiber

- Fiber specifications
- Single-mode fiber characteristics
- ITU-T G.652
- ITU-T G.652D single-mode optical fiber
- ITU-T G.657 single-mode optical fiber

Optical Cables

- Cable designs
- Optical cable for FTTx
- FTTx distribution and drop cables
- High fiber count cables
- Aerial fiber optic cables
- Distribution cables
- Cable structure and fiber counts
- Fiber and buffer color codes
- Cable handling
- Outside plant cable management
- Fiber distribution hubs
- Splice closures
- Multiport service terminals

Connectors and Splitters

- Common FTTx connectors
- Small form factor LC connectors
- Multifiber connectors
- Fundamental Fiber Planning
- Fundamental planning design steps
- Cost considerations
- Fiber and cable management
- The ideal network location
- Central office location strategy
- Ideal hub/node placement
- Density and central office location
- PON system design
- Configuring fiber routes
- Ideal feeder route configuration
- Cost variance from the ideal
- Typical outside plant fundamental planning

PON Design Options

- Distributed split designs
- Determining the best solution
- OLT and splitter relationship
- Pseudo cabinet concept
- OLT costs
- Fiber cable tapering
- FTTx design efficiency
- Operational issue
- Fiber to the Building

- MDUs and MTUs

- Get cabling to each user

- Fiber in the building design goals

- High-rise buildings

- Medium-rise buildings

- MDU existing infrastructure

- Telecommunications room

- MDU cabling systems

- MDU buildings OSP design options
- Low rise and campus MDUs
- Typical cabinet design strategy
- Typical distributed split design strategy
- Distributed split design conclusions
- FTTB premises ONT options
- End user locations
- Optical network terminals and access points
- Aesthetics Single-family
- Residential Areas
- PON areas
- Subdivision design strategies
- Typical drop layout
- Fiber drop design
- Connectorization Options
- Connectorized versus fusion splicing
- Connectorized drops
- Common reasons for using connectors
- Conventional design options
- Plug and play design options
- Field terminated FTTH connectors
- Mechanical connectors
- Capital expenditures (CAPEX)
- Administration Network performance
- Organizational considerations

- Developing a cost model
- Advantages and disadvantages

Rural Areas

- Network design for rural areas
- Ideal hub/node placement
- Rural area network design
- Splitter placement in rural areas
- Conceptual example of reusing dead fibers

WDM-PON

- ODN and OSP issues
- The impact of WDM-PON
- NG-PON & G-PON2
- TWDM-PON
- Point-to-point
- WDM Wavelength allocations
- Multiplexing and demultiplexing
- WDM-PON design basics
- Centralized design conversion
- Distributed split design conversion
- PON to WDM-PON conversion

Design Steps

- PON loss budgets
- Calculating network loss

- Optical loss budget example
- “Not to exceed” loss budgets
- General design steps
- Home run design steps
- Cabinet design steps
- Cabinet size plans
- Cost modelling
- Outside validation
- Two options for splitter placement
- Central office versus cabinet Distribution split design
- material cost

Specifications

- Product specification
- Partial fiber specification
- Typical optical cable specification sheet

Miscellaneous

- ITU-T G.671
- Splitter specifications
- WDM specifications
- Telcordia requirements
- Physical layer standards
- Outside plant standards
- North American Codes

- Proper aerial route planning and engineering
- Typical pole clearances
- Fiber quality

➤ **REQUIREMENTS:**

- **Personal computer**
- **Safety Ware**
- **Smartphone**

MODULE COST : 400000UGx(105USD)