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Course Name

FTTX, GPON Design, Installation & Testing

Sector Name

Instrumentation & Controls

Document Type

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FTTX, GPON Design, Installation & Testing

Course Introduction

Since the customers have demanded a more intensive bandwidth, the telecommunications carriers must seek to offer a mature network convergence and enable the revolution of consumer media device interaction. Here, the emergence of FTTX technology is significant for people all over the world.

This program has a deep study using actual field samples and hands-on training for the FTTX and GPON, which are the latest developments in access networks. The course is designed for engineers, supervisors, and technicians to match the rapid growth of new technologies.

The course covers the FTTX type, OSP GPON, and customer premise cabling, equipment, installation, components, and testing.

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Target Audience

- ✓ OSP
- ✓ ISP engineers
- ✓ Supervisors
- ✓ Team leaders
- ✓ Telecom Technicians
- ✓ IT Implementation staff
- ✓ Designers

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Learning Objectives

- ✓ Know what FTTX is?
- ✓ Recognize the Type of FTTX Networks
- ✓ Studying the FTTX protocols
- ✓ Installing OSP GPON and premise cabling
- ✓ Splicing and termination of fiber cables
- ✓ Acquire knowledge of GPON and components
- ✓ Calculating the loss budget
- ✓ Calculating the power budget
- ✓ Testing GPON networks
- ✓ Learn GPON troubleshooting
- ✓ Design FTTX Networks

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Course Outline

✓ 01 Day One

Fiber optic and FTTX overview

- ✓ Fiber optic basics
- ✓ Fiber optic types
- ✓ Fiber optic standards
- ✓ What is the FTTX?
- ✓ FTTH, FTTC, FTTO, and FTTB
- ✓ Triple play system
- ✓ Advantages of the FTTX

FTTX Networks Types and Protocol

- ✓ Point to Point (PTP)
- ✓ Active Star
- ✓ PON (Passive Optical Networks)

PON Networks Types

- ✓ APON
- ✓ BPON
- ✓ EPON
- ✓ GPON

✓ WDM PON

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Course Outline

✓ 02 Day Two

GPON Networks Architectures

- ✓ OSP
- ✓ Data Center Side OLT
- ✓ End User Side ONU

GPON OSP Cabling and Components

- ✓ TIA G652.D
- ✓ Feeder cables
- ✓ Distribution cables
- ✓ Splitters
- ✓ Pre-terminated Splitter and Rack Mount Splitter
- ✓ OSP splitter hub
- ✓ Distribution/ drop closure
- ✓ APC connector

OLT Optical Network Terminal Components

- ✓ OLT
- ✓ ODF
- ✓ FDH
- ✓ STB and IAD

✓ Routers

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Course Outline

✓ 03 Day Three

ONU Customer Premise Cabling and Components

- ✓ Rack mount FDH
- ✓ Wall mount FDH
- ✓ Patch Panel
- ✓ TIA G657
- ✓ ONU
- ✓ Drop cables
- ✓ Drop/customer box
- ✓ Fast connector
- ✓ UTP Cat5e, CAT6 and Coaxial cabling

GPON Installation

- ✓ Installation Standards and Procedures
- ✓ Cable pulling
- ✓ Fiber optic fusion splicing
- ✓ Underground closure installation and fiber distribution
- ✓ FDH installation

ONU Installation

- ✓ Trunk and cable tray fixing
- ✓ Indoor conduits
- ✓ User termination box installation
- ✓ Fast connector termination
- ✓ UTP cables installation, termination, and testing

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Course Outline

✓ 04 Day Four

GPON testing and troubleshooting

- ✓ VFL
- ✓ End to End Loss Test with Power meter and laser source
- ✓ OTDR Test
- ✓ GPON Testing plan and procedures
- ✓ GPON Troubleshooting

Micro Cabling

- ✓ Micro ducts
- ✓ Micro cables
- ✓ Duct calibration
- ✓ Micro-ducts jointing
- ✓ Cable air blowing

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Course Outline

✓ 05 Day Five

GPON Design

- ✓ Choosing components
- ✓ Actual splitter loss calculation
- ✓ End-to-end loss budget calculation
- ✓ Transmitter absolute power calculation
- ✓ Receiver sensitivity
- ✓ Power budget calculation
- ✓ Estimation of Bandwidth
- ✓ ITU 984
- ✓ GPON Design Guidelines
- ✓ GPON frame format

Review & Quiz

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Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
Nov. 9, 2026	Nov. 13, 2026	5 days	5950.00 $	USA , Los Angeles
Sept. 27, 2027	Oct. 1, 2027	5 days	4250.00 $	UAE , Abu Dhabi
March 29, 2027	April 2, 2027	5 days	4250.00 $	UAE , Dubai
May 23, 2027	May 27, 2027	5 days	4250.00 $	KSA , Riyadh

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