



Customer Training Catalog Training Programs Mobile Backhaul Solution Training



HUAWEI
HUAWEI Learning Service
2015



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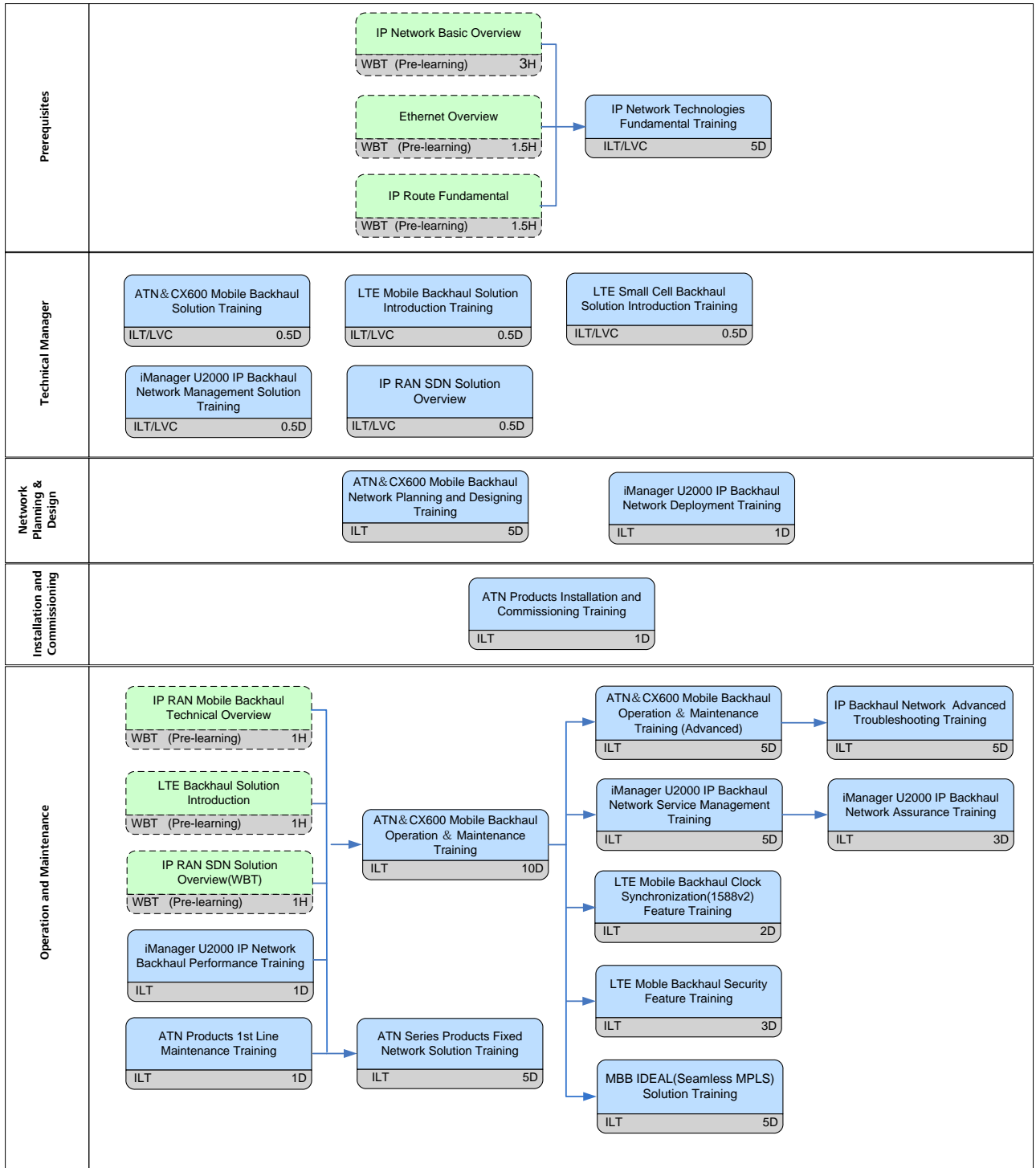


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1 Training Path

1.1 Mobile Backhaul Solution Training Path

1.1.1 ATN&CX600 Mobile Backhaul Solution Training



The dashed block indicates optional module

1.1.2 PTN-Based Mobile Backhaul Solution Training

Prerequisites	<div style="border: 1px dashed black; padding: 5px; display: inline-block;"> PTN Series Product Introduction(WBT) </div> WBT 1H
Technical Manager	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> PTN-Based Mobile Backhaul Evolution Solution Training </div> ILT 0.5D
Network Planning & Design	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN Network Planning and Design Training ILT 3D </div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN6900 Network Planning and Design Training ILT 5D </div> </div>
Installation and Commissioning	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN Products Installation and Commissioning Training ILT 2D </div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN6900 Products Installation and Commissioning Training ILT 1D </div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN7900 Products Installation and Commissioning Training ILT 1D </div> </div>
Operation and Maintenance	<div style="border: 1px solid black; padding: 10px;"> <div style="display: flex; justify-content: space-around; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN Products 1st Line Maintenance Training ILT 2D </div> <div style="font-size: 20px;">→</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN Products 2nd Line Maintenance Training ILT 10D </div> <div style="font-size: 20px;">→</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN Products 3rd Line Maintenance Training ILT 5D </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN6900 Products 1st Line Maintenance Training ILT 1D </div> <div style="font-size: 20px;">→</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN6900 Products 2nd Line Maintenance Training ILT 10D </div> <div style="font-size: 20px;">→</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN6900 Products 3rd Line Maintenance Training ILT 5D </div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN7900 Products 1st Line Maintenance Training ILT 1D </div> <div style="font-size: 20px;">→</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN7900 Products 2nd Line Maintenance Training ILT 10D </div> <div style="font-size: 20px;">→</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> PTN7900 Products 3rd Line Maintenance Training ILT 5D </div> </div> </div>

2 Training Programs

Mobile Backhaul Solution Training Training Programs are designed as follows:

Training Programs	Level	Duration (working days)	Training Location	Class Size
IP Network OSS				
iManager U2000 IP Backhaul Network Deployment Training	II	1		6 ~ 12
iManager U2000 IP Backhaul Network Performance Training	II	1		6 ~ 12
iManager U2000 IP Backhaul Network Service Management Training	III	5		6 ~ 12
iManager U2000 IP Backhaul Network Assurance Training	III	3		6 ~ 12
Mobile Backhaul Evolution and Trends Training				
ATN&CX600 Mobile Backhaul Solution Training	II	0.5		6 ~ 12
LTE Mobile Backhaul Solution Introduction Training	II	0.5		6 ~ 12
LTE Small Cell Backhaul Solution Introduction Training	II	0.5		6 ~ 12
IP RAN SDN Solution Overview	III	0.5		6 ~ 12
PTN-Based Mobile Backhaul Evolution Solution Training	II	0.5		6 ~ 12
Mobile Backhaul Planning and Design Training				
ATN&CX600 Mobile Backhaul Network Planning and Designing Training	IV	5		6 ~ 12
PTN Network Planning and Design Training	IV	3		6 ~ 12
PTN 6900 Network Planning and Design Training	IV	5		6 ~ 12
Mobile Backhaul Operation and Maintenance Training				
ATN&CX600 Mobile Backhaul Operation & Maintenance Training	II	10		6 ~ 12
ATN&CX600 Mobile Backhaul Operation & Maintenance Training (Advanced)	III	5		6 ~ 12
ATN Products 1st Line Maintenance Training	I	1		6 ~ 12
ATN Products Installation and Commissioning Training	I	2		6 ~ 12
LTE Mobile Backhaul Security Feature Training	III	3		6 ~ 12

LTE Mobile Backhaul Clock Synchronization(1588v2) Feature Training	III	2		6 ~ 24
MBB IDEAL(Seamless MPLS) Solution Training	III	5		6 ~ 12
ATN Series Products Fixed Network Solution Training	II	5		6 ~ 12
IP Backhaul Network Advanced Troubleshooting Training	III	5		6 ~ 12
PTN Products Installation and Commissioning Training	I	2		6 ~ 12
PTN Products 1st Line Maintenance Training	I	2		6 ~ 12
PTN Products 2nd Line Maintenance Training	II	10		6 ~ 12
PTN Products 3rd Line Maintenance Training	III	5		6 ~ 12
PTN 6900 Products Installation and Commissioning Training	I	1		6 ~ 12
PTN 6900 Products 1st Line Maintenance Training	I	1		6 ~ 12
PTN 6900 Products 2nd Line Maintenance Training	II	10		6 ~ 12
PTN 6900 Products 3rd Line Maintenance Training	III	5		6 ~ 12
PTN 7900 Products Installation and Commissioning Training	I	1		6 ~ 12
PTN 7900 Products 1st Line Maintenance Training	I	1		6 ~ 12
PTN 7900 Products 2nd Line Maintenance Training	II	10		6 ~ 12
PTN 7900 Products 3rd Line Maintenance Training	III	5		6 ~ 12
Mobile Backhaul Solution (WBT)				
IP RAN Mobile Backhaul Technical Overview(WBT)	II	0.5 h		No limit
PTN Series Product Introduction(WBT)	II	1 h		No limit
LTE Backhaul Solution Introduction(WBT)	II	1 h		No limit
IP RAN SDN Solution Overview(WBT)	III	1 h		No limit

2.1 IP Network OSS Training Programs

2.1.1 iManager U2000 IP Backhaul Network Deployment Training

Training Path

iManager U2000 IP Backhaul Network Deployment		
ODM11	Lecture, Lab	1d

Target Audience

Mobile backhaul network planning and designing engineer

Prerequisites

- Having basic knowledge of Datacom

Objectives

On completion of this program, the participants will be able to:

- Describe basic concepts of plug and play
- Describe the steps of the plug and play in the IP backhaul network
- Use U2000 to complete the plug and play

Duration

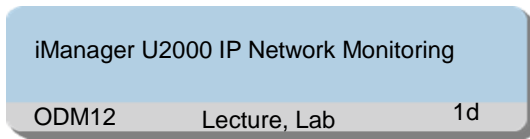
1 working day

Class Size

Min 6, Max 12

2.1.2 iManager U2000 IP Backhaul Network Performance Training

Training Path



Target Audience

Mobile backhaul network operation and maintenance engineer

Prerequisites

- Having basic knowledge of Datacom
- Familiar with operation of iManager U2000

Objectives

On completion of this program, the participants will

be able to:

- Describe The purpose of the IP network performance monitoring
- Describe the method of IP network performance monitoring
- Use U2000 to complete the IP network performance monitoring

Duration

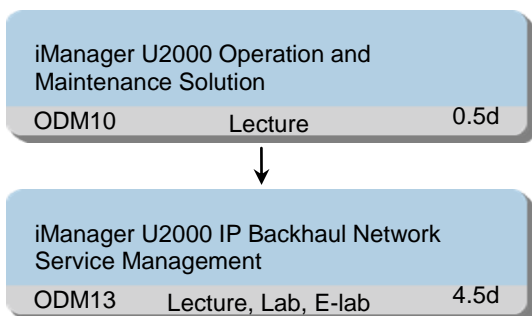
1 working day

Class Size

Min 6, Max 12

2.1.3 iManager U2000 IP Backhaul Network Service Management Training

Training Path



Target Audience

Mobile backhaul network operation and maintenance engineer

Prerequisites

- Familiar with the working principle of IGP routing protocol
- Familiar with the working principle of MPLS VPN including L3VPN、VPLS and PWE3

Objectives

On completion of this program, the participants will be able to:

- Describe the operation and maintenance challenges in the IP backhaul network
- Describe Huawei iManager U2000 end-to-end network management solutions
- Describe the value of U2000 in the IP backhaul network cell deployment
- Describe the value of U2000 in the IP backhaul network service deployment
- Describe the value of U2000 in the IP backhaul

network service maintenance

- Describe the value of U2000 in the IP backhaul network fault troubleshooting
- Describe the common service of the IP backhaul network
- Describe L3VPN service implementation in the IP backhaul network
- Use U2000 to complete the L3VPN service management and configuration
- Describe PWE3 service implementation in the IP backhaul network
- Use U2000 to complete the PWE3 service management and configuration
- Describe VPLS service implementation in the IP backhaul network
- Use U2000 to complete the VPLS service management and configuration
- Describe HVPN service implementation in the IP backhaul network
- Use U2000 to complete the HVPN service management and configuration
- Describe Mixed VPN service implementation in the IP backhaul network
- Use U2000 to complete the Mixed VPN service management and configuration

Duration

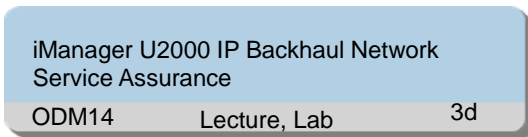
5 working days

Class Size

Min 6, Max 12

2.1.4 iManager U2000 IP Backhaul Network Assurance Training

Training Path



Target Audience

Mobile backhaul network senior operation and maintenance engineer

Prerequisites

- At Least one year U2000 products operation experience
- Familiar with the working principle of MPLS VPN including L3VPN, VPLS and PWE3

Objectives

On completion of this program, the participants will

be able to:

- Describe the challenges of IP backhaul network maintenance
- Describe the U2000 alarm management
- Use U2000 to configure alarm management
- Describe the U2000 fault location and processing methods
- Use U2000 troubleshooting in the IP backhaul network

Duration

3 working days

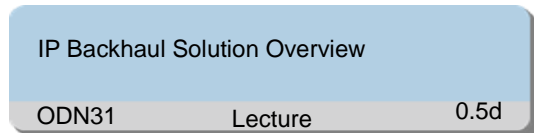
Class Size

Min 6, Max 12

2.2 Mobile Backhaul Evolution and Trends Training Training Programs

2.2.1 ATN&CX600 Mobile Backhaul Solution Training

Training Path



Target Audience

Operation manager
Technical manager

Prerequisites

- Having basic knowledge of TCP/IP

Objectives

On completion of this program, the participants will

be able to:

- Describe the MBB overall development trend
- Describe the demands and challenges of the MBB backhaul network
- Describe the mobile backhaul solution
- Describe the LTE mobile backhaul solution
- Describe the operation and management of the MBB era

Duration

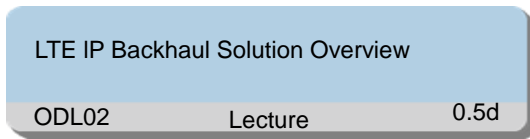
0.5 working day

Class Size

Min 6, Max 12

2.2.2 LTE Mobile Backhaul Solution Introduction Training

Training Path



Target Audience

Operation manager

Technical manager

Prerequisites

- Having basic knowledge of TCP/IP

Objectives

On completion of this program, the participants will be able to:

- Describe the wireless network evolution to LTE network
- Describe LTE network architecture and features
- Describe LTE mobile backhaul network requirements
- Describe LTE mobile backhaul network solutions

Duration

0.5 working day

Class Size

Min 6, Max 12

2.2.3 LTE Small Cell Backhaul Solution Introduction Training

Training Path

LTE Small Cell Backhaul Solution Overview		
ODL01	Lecture	0.5d

Target Audience

Operation manager

Technical manager

Prerequisites

- Having basic knowledge of TCP/IP

Objectives

On completion of this program, the participants will

be able to:

- Describe small cell characteristics
- Describe small cell bearing requirements
- Describe small cell backhaul solution implementation
- Describe small cell backhaul products

Duration

0.5 working day

Class Size

Min 6, Max 12

2.2.4 IP RAN SDN Solution Overview

Training Path

IP RAN SDN Solution Overview		
ODL13	Lecture, Demo	0.5d

Target Audience

Mobile backhaul network senior operation and maintenance engineer

Manager

Prerequisites

- Familiar with the IP RAN solution

Objectives

On completion of this program, the participants will be able to:

- Describe basic concepts of SDN technology
- Describe the requirement of IP RAN SDN solution
- Describe the implementation of IP RAN SDN solution

Duration

0.5 working day

Class Size

Min 6, Max 12

2.2.5 PTN-Based Mobile Backhaul Evolution Solution Training

Training Path

PTN-Based Mobile Backhaul Evolution Solution		
ODP16	Lecture	0.5d

Target Audience

Technical manager

Prerequisites

- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe Huawei PTN-Based mobile backhaul evolution solution

Duration

0.5 working day

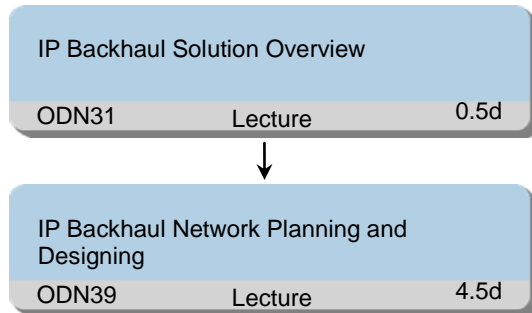
Class Size

Min 6, Max 12

2.3 Mobile Backhaul Planning and Design Training Programs

2.3.1 ATN&CX600 Mobile Backhaul Network Planning and Designing Training

Training Path



Target Audience

Mobile backhaul network planning and design engineer

Network evaluation and optimization engineer

Prerequisites

- Having basic knowledge of TCP/IP

Objectives

On completion of this program, the participants will

be able to:

- Describe the MBB overall development trend
- Describe the demands and challenges of the MBB backhaul network
- Describe the mobile backhaul solution
- Describe the LTE mobile backhaul solution
- Describe the operation and management of the MBB era
- Describe planning and design principles of the IP backhaul network
- Describe planning and design methods of the IP backhaul network

Duration

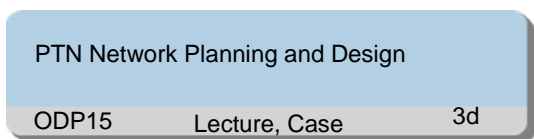
5 working days

Class Size

Min 6, Max 12

2.3.2 PTN Network Planning and Design Training

Training Path



Target Audience

PTN series network planning and design engineer

Prerequisites

- Completion of PTN 2nd Line Maintenance training

Objectives

On completion of this program, the participants will be able to:

- Describe the PTN network planning process
- Collect the network requirements information
- Plan the PTN network layers
- Plan the PTN network services
- Plan the PTN network management and DCN

- Plan the equipment types according to the network requirement
- Plan the PTN equipment boards
- Plan the PTN network protections
- Plan the PTN network synchronization
- Plan the PTN network QoS
- Design the PTN network layers
- Design the PTN network slots allocation
- Design the PTN equipment parameters
- Design the MPLS tunnel parameters
- Design CES /ATM /Ethernet services parameters

Duration

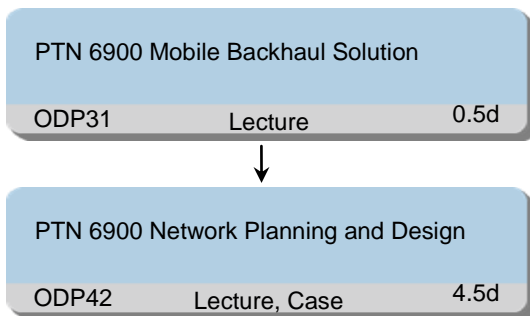
3 working days

Class Size

Min 6, Max 12

2.3.3 PTN 6900 Network Planning and Design Training

Training Path



Objectives

On completion of this program, the participants will be able to:

- Describe Huawei PTN 6900 Mobile Backhaul Solution
- Describe planning and design principles of the PTN&PTN 6900 mobile backhaul network
- Describe planning and design methods of the PTN&PTN 6900 mobile backhaul network

Target Audience

PTN 6900 series network planning and design engineers

Prerequisites

- Completion of PTN 6900 3rd Line Maintenance Training

Duration

5 working days

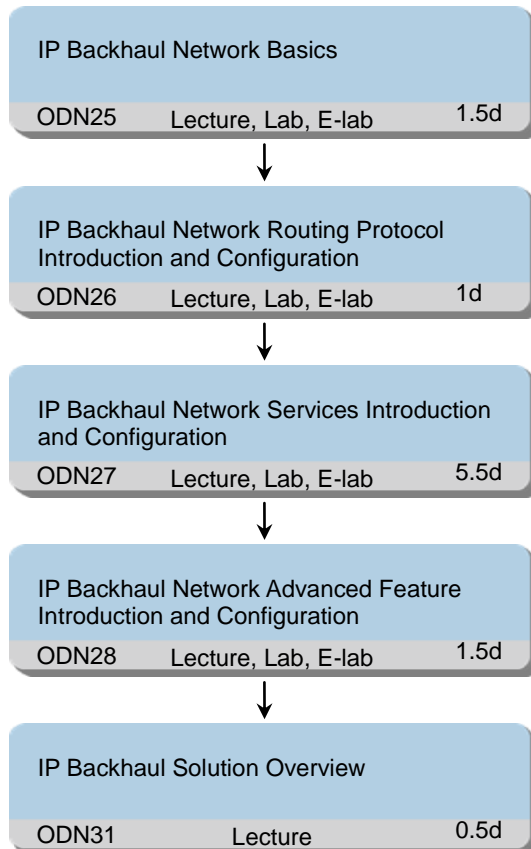
Class Size

Min 6, Max 12

2.4 Mobile Backhaul Operation and Maintenance Training Programs

2.4.1 ATN&CX600 Mobile Backhaul Operation & Maintenance Training

Training Path



Target Audience

Mobile backhaul network operation and maintenance engineer

Prerequisites

- Familiar with the working principle of IGP routing protocol
- Familiar with the working principle of MPLS VPN including L3VPN and VPLS

Objectives

On completion of this program, the participants will be able to:

- Describe the MBB overall development trend
- Describe the demands and challenges of the MBB backhaul network
- Describe the mobile backhaul solution
- Describe the LTE mobile backhaul solution
- Describe the operation and management of the MBB era
- Describe the TCP/IP model and common network protocols
- Describe the ethernet technology
- Describe the switch working principle
- Describe the VLAN technology
- Describe the IP routing protocols
- Describe the router working principle
- Describe the IP backhaul networking equipment
- Describe the IGP routing protocol basics in IP backhaul network
- Describe the deployment of the IGP routing protocols in the IP backhaul network
- Complete the configuration of the IGP routing protocol in the IP backhaul network
- Describe the MPLS label technology
- Describe LDP Protocol
- Describe the MPLS TE tunnel establishment of technical
- Describe the reliability of the TE tunnel technology
- Complete the configuration of MPLS tunnels and reliability
- Describe the MPLS L3VPN bearing technology
- Describe the reliability of the VPN FRR service technology
- Complete the L3VPN service and reliability configuration
- Describe the MPLS L2VPN bearing technology

- Describe the reliability of PW Redundancy service technology
- Complete the TDM / ATM of PWE3 service and reliability configuration
- Describe the QoS technology
- Describe the QoS implementation and deployment in IP backhaul network
- Describe the clock synchronization technology
- Describe the clock synchronization implementation and deployment in IP backhaul network

- Complete QoS configuration in the IP backhaul network
- Complete clock synchronization technology configuration in IP backhaul network

Duration

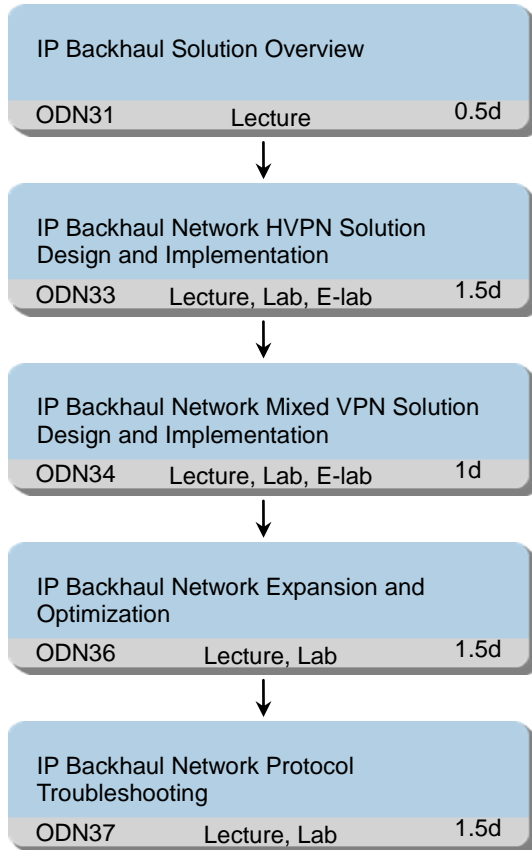
10 working days

Class Size

Min 6, Max 12

2.4.2 ATN&CX600 Mobile Backhaul Operation & Maintenance Training (Advanced)

Training Path



Target Audience

Mobile backhaul network senior operation and maintenance engineer

Prerequisites

- Familiar with the working principle of IGP routing protocol
- Familiar with the working principle of MPLS VPN including L3VPN and VPLS

Objectives

On completion of this program, the participants will be able to:

- Describe the MBB overall development trend
- Describe the demands and challenges of the MBB backhaul network
- Describe the mobile backhaul solution
- Describe the LTE mobile backhaul solution

- Describe the operation and management of the MBB era
- Design and deploy the HVPN docking program
- Design and deploy HVPN routing protocol
- Design and deploy layered TE tunnel and reliability technology
- Design and deploy hierarchical L2VPN program and technical reliability
- Design and deploy hierarchical L3VPN program and reliability technology
- Design and deploy the HVPN program QoS technology
- Design and deploy the HVPN program clock synchronization technology
- Design and deploy the Mixed VPN docking program
- Design and deploy Mixed VPN routing protocol
- Design and deploy layered TE tunnel and reliability technology
- Design and deploy hierarchical L2VPN program and technical reliability
- Design and deploy L2VPN+L3VPN program and reliability technology
- Design and deploy the Mixed VPN program QoS technology
- Design and deploy the Mixed VPN program clock synchronization technology
- Describe troubleshooting process on IP backhaul network
- Describe troubleshooting locating method on IP backhaul network
- Troubleshooting the ordinary fault of IP backhaul network

Duration

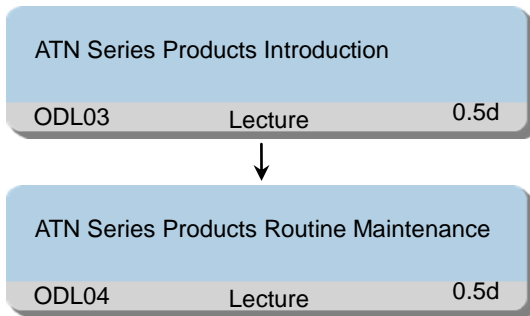
5 working days

Class Size

Min 6, Max 12

2.4.3 ATN Products 1st Line Maintenance Training

Training Path



Target Audience

ATN Series Product Operation and maintenance engineers
FO engineer

Prerequisites

- Having basic knowledge of TCP/IP

Objectives

On completion of this program, the participants will be able to:

- Describe ATN products chassis and boards
- Describe ATN network application
- Check if the board is running normally with LED
- Check the information of the system with the routine maintenance commands
- Check the info-center
- Check the U2000 system

Duration

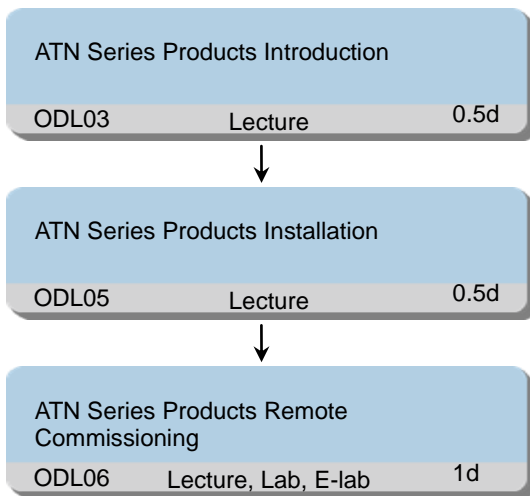
1 working day

Class Size

Min 6, Max 12

2.4.4 ATN Products Installation and Commissioning Training

Training Path



Target Audience

ATN Series Product Operation and maintenance engineers

FO engineer

Prerequisites

- Having basic knowledge of TCP/IP

Objectives

On completion of this program, the participants will be able to:

- Describe ATN products chassis and boards
- Describe ATN network application
- Install ATN series products cabinet, frame and board properly
- Perform ATN series products cable routing and termination properly
- Identify the cautions and facts which may affect ATN series products system running due to improperly installation
- Describe Plug-and-Play concepts
- Know how to perform remote commissioning through the DCN
- Know how to perform remote commissioning using DHCP

Duration

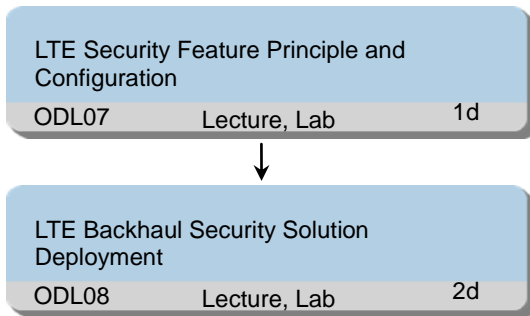
2 working days

Class Size

Min 6, Max 12

2.4.5 LTE Mobile Backhaul Security Feature Training

Training Path



Target Audience

Mobile backhaul network operation and maintenance engineer

Prerequisites

- Familiar with the working solution of IP backhaul network
- Completion of "IP Backhaul Network Operation and Maintenance training"

Objectives

On completion of this program, the participants will be able to:

- Describe IPsec concept
- Describe LTE security requirements
- Complete IPsec feature configuration
- Describe LTE backhaul solution
- Describe security Plug-and-Play PKI-based site deployment step
- Complete LTE backhaul IPsec feature deployment

Duration

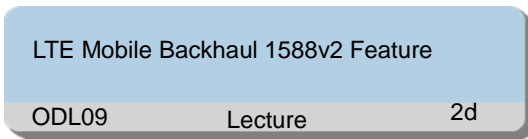
3 working days

Class Size

Min 6, Max 12

2.4.6 LTE Mobile Backhaul Clock Synchronization(1588v2) Feature Training

Training Path



Target Audience

Mobile backhaul network operation and maintenance engineer

Prerequisites

- Having basic experience of telecommunications network

Objectives

On completion of this program, the participants will be able to:

- Understand basic concepts of synchronization network

- Describe the principle of 1588V2
- Describe the 1588V2 device model, message and BMC algorithm
- Describe the typical application scenarios and deployment of 1588V2
- Outline the planning principles of mainstream 1588V2 network scenarios
- Perform the 1588V2 characteristics of deployment process
- Understand the 1588V2 detection methods

Duration

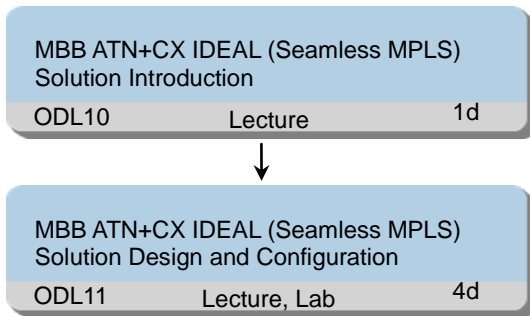
2 working days

Class Size

Min 6, Max 24

2.4.7 MBB IDEAL(Seamless MPLS) Solution Training

Training Path



Target Audience

Mobile backhaul network senior operation and maintenance engineer

Prerequisites

- Familiar with the working principle of routing protocol
- Familiar with the working principle of MPLS L3 VPN

Objectives

On completion of this program, the participants will be able to:

- Describe Requirement for IDEAL Solution
- Describe Network and Service Design and Implementation of IDEAL Solution
- Describe Network Protocol Implementation of IDEAL Solution
- Configure Network Protocol of IDEAL Solution
- Describe Service Implementation of IDEAL Solution
- Configure Services of IDEAL Solution

Duration

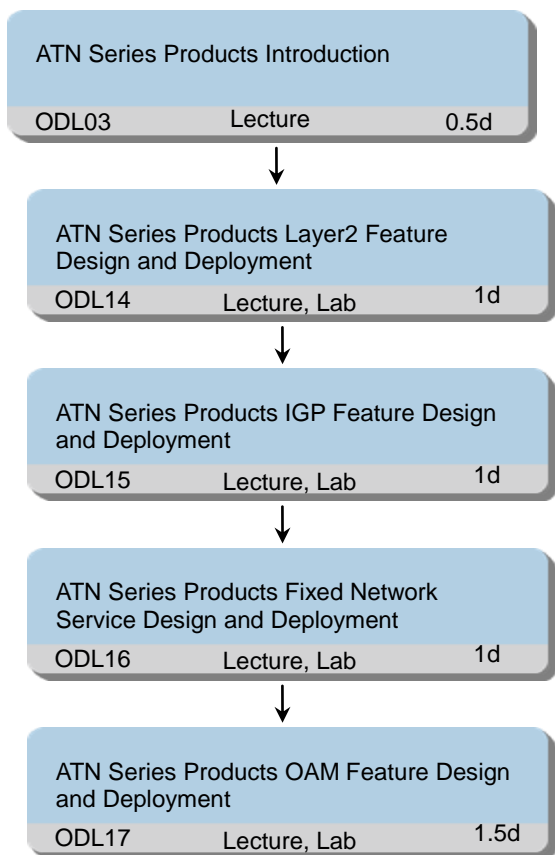
5 working days

Class Size

Min 6, Max 12

2.4.8 ATN Series Products Fixed Network Solution Training

Training Path



Target Audience

ATN Series Product Operation and maintenance engineers
FO engineer

Prerequisites

- Familiar with basic knowledge of data communications

Objectives

On completion of this program, the participants will be able to:

- Describe eth-trunk implementation
- Describe eth-trunk forwarding
- Describe LACP function
- Configure Eth-Trunk in ATN products
- Describe functions of QinQ
- Describe how QinQ is implemented
- Describe how selective QinQ is implemented
- Configure QinQ and selective QinQ on ATN products
- Describes IGP routing protocol functions
- Describe IGP routing protocol basic concepts
- Configure IGP routing protocol
- Describe the concept and architecture of MPLS L2VPN
- Describe the implementation of Ethernet service emulation
- Configure E-Line services
- Introduce the Huawei ATN EDD solution
- Describe the concept and principle of RFC2544
- Describe the concept and principle of basic Y.1731 functions
- Describe the concept and principle of HQoS
- Configure EDD
- Describe the concept and principle of Ethernet OAM
- Describe the concept and principle of MPLS-TP OAM
- Configure OAM

Duration

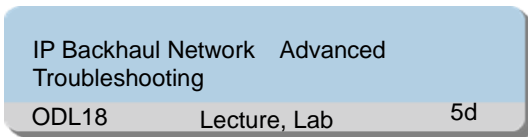
5 working days

Class Size

Min 6, Max 12

2.4.9 IP Backhaul Network Advanced Troubleshooting Training

Training Path



Target Audience

Mobile backhaul network senior operation and maintenance engineer

Prerequisites

- Familiar with the working principle of IGP routing protocol
- Familiar with the working principle of MPLS VPN including L3VPN and VPLS

Objectives

On completion of this program, the participants will be able to:

- Describe IP backhaul network problem

scenario

- Describe IP backhaul network troubleshooting process
- Describe routing protocol problem handling process for IP backhaul network
- Describe MPLS tunnel problem handling process for IP backhaul network
- Describe VPN Service problem handling process for IP backhaul network
- Complete IP backhaul network problem analysis and troubleshooting

Duration

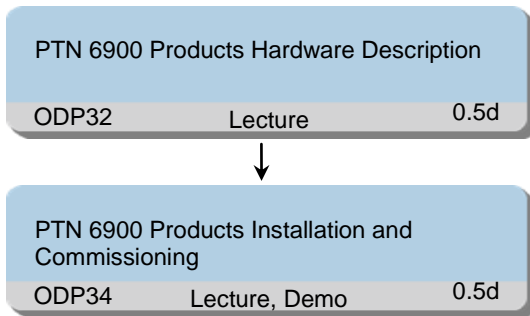
5 working days

Class Size

Min 6, Max 12

2.4.10 PTN 6900 Products Installation and Commissioning Training

Training Path



Target Audience

PTN 6900 series installation and commissioning engineers

Prerequisites

- Having an overview of PTN 6900 products applications

- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe PTN 6900 series hardware structure
- Describe PTN 6900 series boards
- Describe PTN 6900 products installation and the precautions

Duration

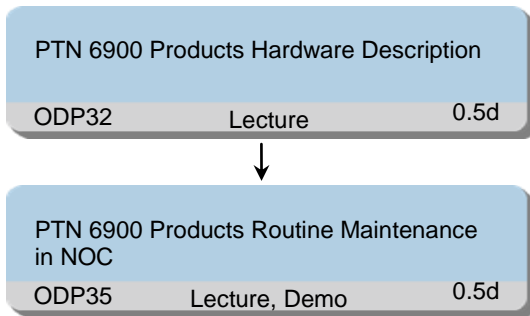
1 working day

Class Size

Min 6, Max 12

2.4.11 PTN 6900 Products 1st Line Maintenance Training

Training Path



Target Audience

PTN 6900 series 1st line /field maintenance engineers

Prerequisites

- Having an overview of PTN 6900 products applications
- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe PTN 6900 series hardware structure
- Describe PTN 6900 series boards
- Describe PTN 6900 products routine maintenance
- Describe the tools and method of routine maintenance in NOC

Duration

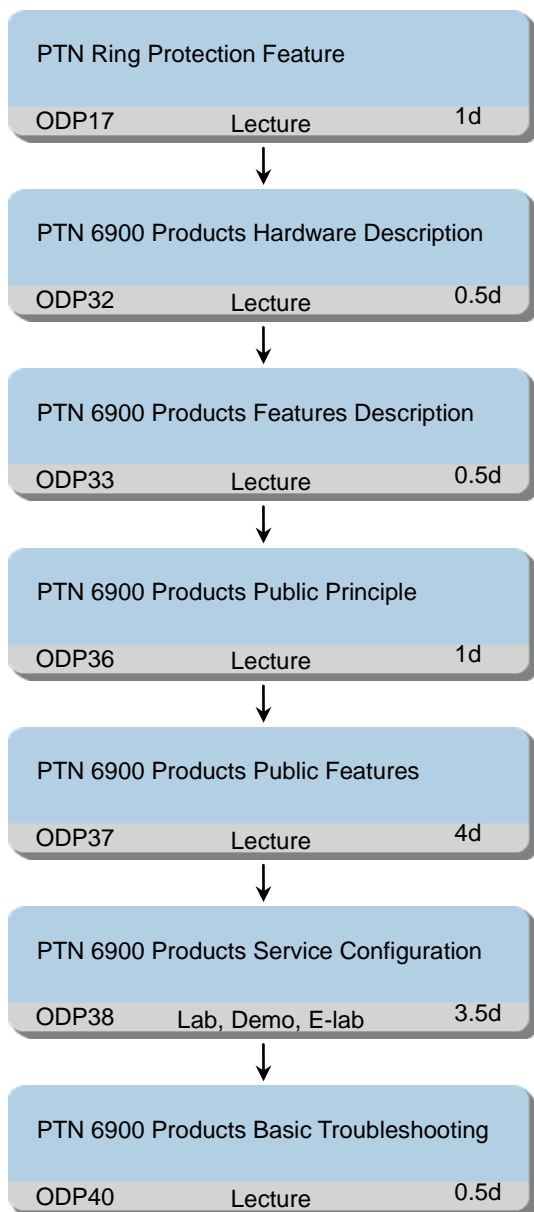
1 working day

Class Size

Min 6, Max 12

2.4.12 PTN 6900 Products 2nd Line Maintenance Training

Training Path



Target Audience

PTN 6900 series 2nd Line maintenance engineers and 3rd Line maintenance engineers and network planning and design engineers

Prerequisites

- Having an overview of PTN 6900 products applications
- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe PTN 6900 series hardware structure
- Describe PTN 6900 series boards
- Describe PTN 6900 series software feature
- Describe TCP & IP basic concepts
- Describe Ethernet basic principle
- Describe basic IP routing protocol works
- Describe routing protocol technology
- Describe MPLS/MPLS TE technology
- Describe MPLS L3VPN technology
- Describe protection technology
- Describe QoS technology
- Describe clock synchronization technology
- Configure basic parameters
- Configure mpls tunnel
- Configure CES service
- Configure ATM service
- Configure ETH L2 service
- Configure ETH L3 service
- Describe basic troubleshooting process
- Describe PTN Ring Protection working principle
- Configure PTN Ring Protection

Duration

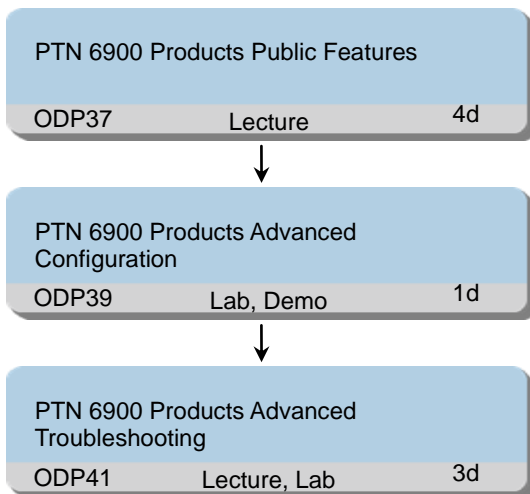
10 working days

Class Size

Min 6, Max 12

2.4.13 PTN 6900 Products 3rd Line Maintenance Training

Training Path



Target Audience

PTN 6900 series 3rd Line maintenance engineers

Prerequisites

- Completion of PTN 6900 2nd Line Maintenance Training

Objectives

On completion of this program, the participants will be able to:

- Describe routing protocol technology
- Describe MPLS/MPLS TE technology
- Describe MPLS L3VPN technology
- Describe protection technology
- Describe QoS technology
- Describe clock synchronization technology
- Configure QoS in mobile backhaul network
- Configure clock synchronization in mobile backhaul network
- Describe alarm and performance analysis
- Describe common troubleshooting case
- Locate and eliminate PTN products faults

Duration

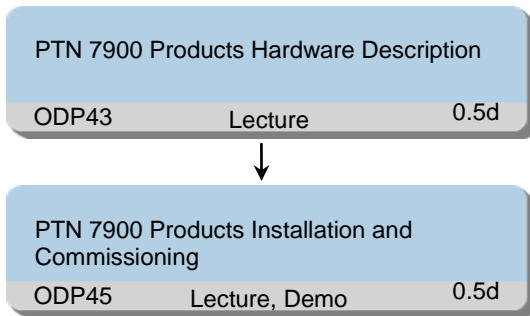
5 working days

Class Size

Min 6, Max 12

2.4.14 PTN 7900 Products Installation and Commissioning Training

Training Path



Target Audience

PTN 6900 series installation and commissioning engineers

Prerequisites

- Having an overview of PTN 7900 products

applications

- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe PTN 7900 series hardware structure
- Describe PTN 7900 series boards

Duration

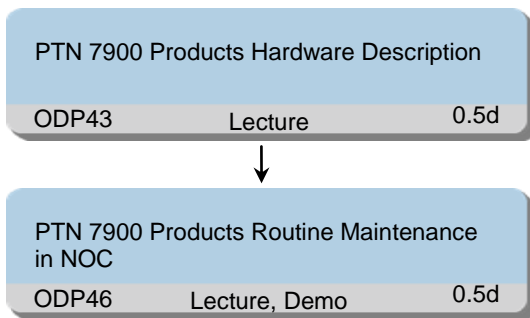
1 working day

Class Size

Min 6, Max 12

2.4.15 PTN 7900 Products 1st Line Maintenance Training

Training Path



Target Audience

PTN 7900 series 1st line /field maintenance engineers

Prerequisites

- Having an overview of PTN 7900 products

applications

- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe PTN 7900 series hardware structure
- Describe PTN 7900 series boards

Duration

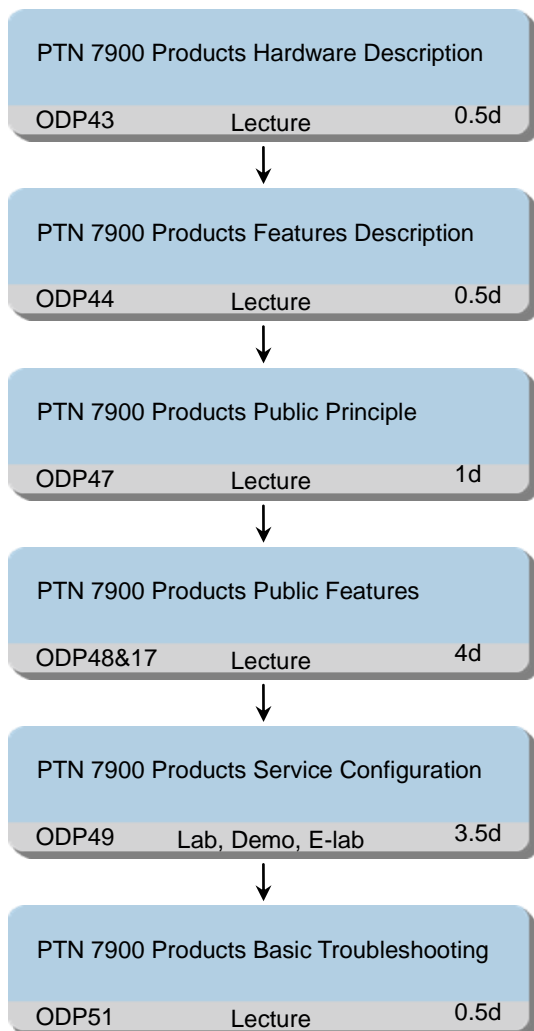
1 working day

Class Size

Min 6, Max 12

2.4.16 PTN 7900 Products 2nd Line Maintenance Training

Training Path



Target Audience

PTN 7900 series 2nd Line maintenance engineers and 3rd Line maintenance engineers and network planning and design engineers

Prerequisites

- Having an overview of PTN 7900 products applications

- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe PTN 7900 series hardware structure
- Describe PTN 7900 series boards
- Describe PTN 7900 series software feature
- Describe TCP & IP basic concepts
- Describe Ethernet basic principle
- Describe basic IP routing protocol works
- Describe routing protocol technology
- Describe MPLS/MPLS TE technology
- Describe MPLS L3VPN technology
- Describe protection technology
- Describe QoS technology
- Describe clock synchronization technology
- Configure basic parameters
- Configure mpls tunnel
- Configure CES service
- Configure ATM service
- Configure ETH L2 service
- Configure ETH L3 service
- Describe basic troubleshooting process
- Describe PTN Ring Protection working principle
- Configure PTN Ring Protection

Duration

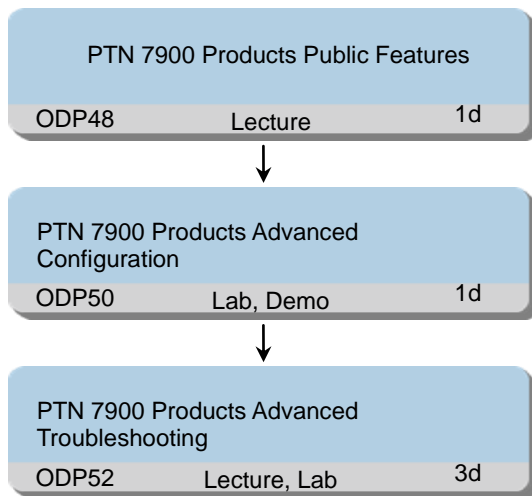
10 working days

Class Size

Min 6, Max 12

2.4.17 PTN 7900 Products 3rd Line Maintenance Training

Training Path



Target Audience

PTN 7900 series 3rd Line maintenance engineers

Prerequisites

- Completion of PTN 7900 2nd Line Maintenance Training

Objectives

On completion of this program, the participants will be able to:

- Describe QoS technology
- Describe clock synchronization technology
- Configure QoS in mobile backhaul network
- Configure clock synchronization in mobile backhaul network
- Describe alarm and performance analysis
- Describe common troubleshooting case
- Locate and eliminate PTN products faults
-

Duration

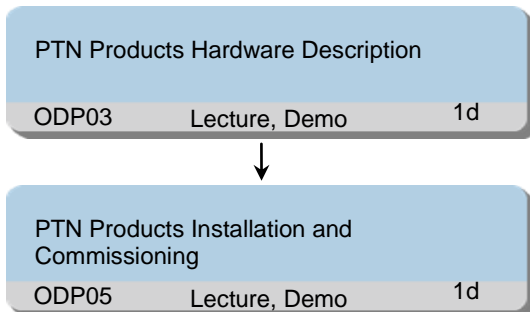
5 working days

Class Size

Min 6, Max 12

2.4.18 PTN Products Installation and Commissioning Training

Training Path



Target Audience

PTN series installation and commissioning engineer

Prerequisites

- Having an overview of PTN products applications
- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe PTN Frame-Shaped Series hardware structure
- Describe PTN Case-Shaped Series hardware structure
- Describe PTN 3900 & 1900 Installation and the precautions
- Describe PTN 950 & 910 Installation and the precautions

Duration

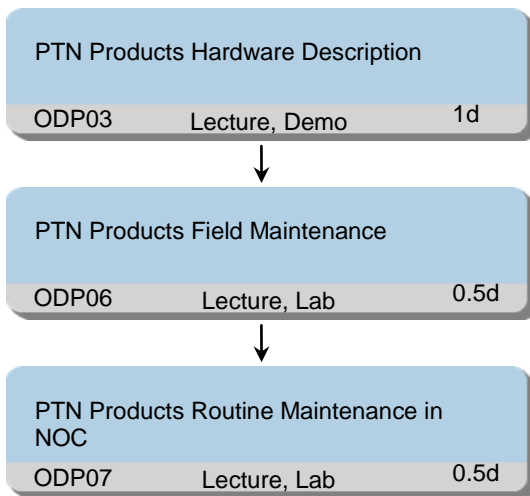
2 working days

Class Size

Min 6, Max 12

2.4.19 PTN Products 1st Line Maintenance Training

Training Path



Target Audience

PTN series 1st line /field maintenance engineer

Prerequisites

- Having an overview of PTN products applications
- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe PTN Frame-Shaped Series hardware structure
- Describe PTN Case-Shaped Series hardware structure
- Describe PTN 3900 & 1900 On-Site maintenance
- Describe PTN 950 & 910 On-Site maintenance
- Describe 3900 & 1900 troubleshooting
- Describe 950 & 910 troubleshooting
- Describe PTN Products routine maintenance
- Describe the tools and method of routine maintenance in NOC

Duration

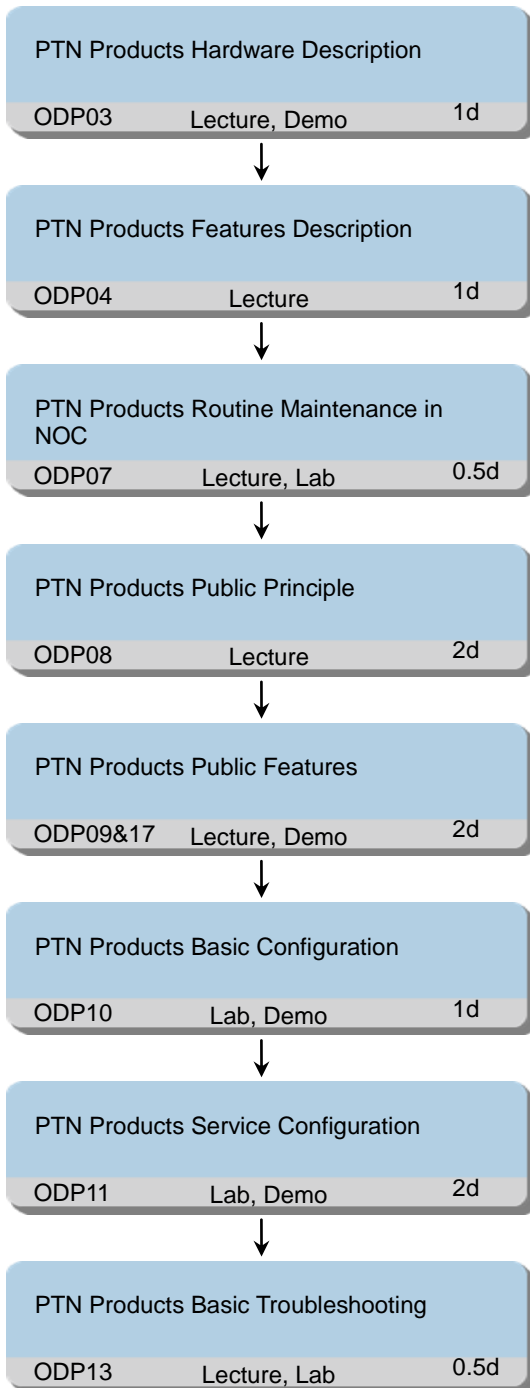
2 working days

Class Size

Min 6, Max 12

2.4.20 PTN Products 2nd Line Maintenance Training

Training Path



Target Audience

PTN series 2nd Line maintenance engineer

Prerequisites

- Having an overview of PTN products

applications

- Having an overview of telecommunications

Objectives

On completion of this program, the participants will be able to:

- Describe TCP & IP basic concepts
- Describe Ethernet basic principle
- Describe basic IP routing protocol works
- Describe MPLS basic concepts
- Describe PTN Frame-Shaped Series hardware structure
- Describe PTN Case-Shaped Series hardware structure
- Describe PTN Frame-Shaped Series software feature
- Describe PTN Case-Shaped Series software feature
- Describe PTN products PWE3 technology
- Describe PTN products control plane
- Describe PTN products QoS technology
- Describe PTN products protection technology
- Describe PTN products packet clock technology
- Configure PTN products basic parameters
- Configure PTN products interfaces
- Configure PTN products control plane
- Configure PTN products MPLS tunnel
- Configure PTN products CES service
- Configure PTN products ATM service
- Configure PTN products E-Line service
- Configure PTN products E-LAN service
- Configure PTN products E-AGGR service
- Describe PTN Products routine maintenance
- Describe the tools and method of routine maintenance in NOC
- Describe PTN products basic troubleshooting process
- Describe PTN Ring Protection working principle
- Configure PTN Ring Protection

Duration

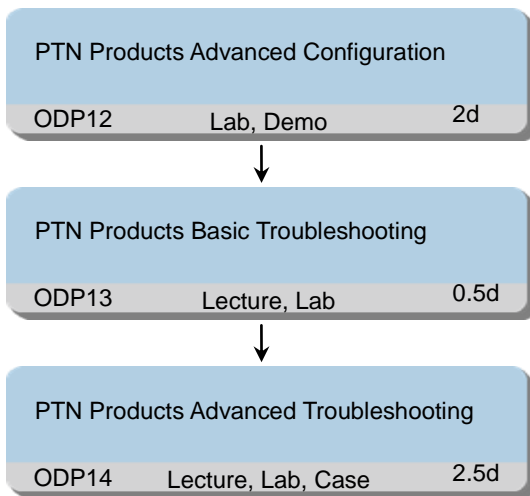
10 working days

Class Size

Min 6, Max 12

2.4.21 PTN Products 3rd Line Maintenance Training

Training Path



Target Audience

PTN series 3rd Line maintenance engineer

Prerequisites

- Completion of PTN 2nd Line Maintenance Training

Objectives

On completion of this program, the participants will be able to:

- Configure PTN products QoS features
- Configure PTN products protection
- Deploy PTN products integrated services
- Describe PTN products basic troubleshooting process
- Describe PTN products alarm and performance analysis
- Describe PTN products common troubleshooting case
- Locate and eliminate PTN products faults

Duration

5 working days

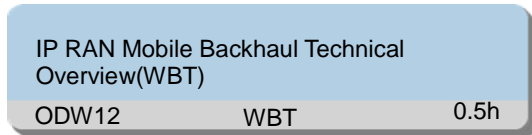
Class Size

Min 6, Max 12

2.5 Mobile Backhaul Solution (WBT) Training Programs

2.5.1 IP RAN Mobile Backhaul Technical Overview(WBT)

Training Path



Target Audience

Technical manager

Prerequisites

- Having basic knowledge in IP network

- Understanding basic network equipment

Objectives

On completion of this program, the participants will be able to:

- Outline ATN and CX600 product features

Duration

0.5 hour

Class Size

No limit

2.5.2 PTN Series Product Introduction(WBT)

Training Path



Target Audience

New staff
Installation engineer
Operation and maintenance engineer

Prerequisites

Having basic knowledge in IP network
Understanding basic network equipment

Objectives

On completion of this program, the participants will be able to:

- Describe PTN series product application scenarios
- Describe PTN series product system structure
- Describe the main functions of PTN series product boards

Duration

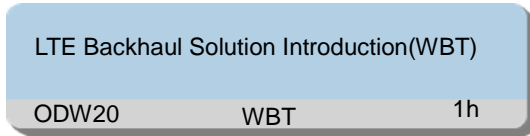
1 hour

Class Size

No limit

2.5.3 LTE Backhaul Solution Introduction(WBT)

Training Path



Target Audience

- New staff
- Installation engineer
- Operation and maintenance engineer

Prerequisites

- Having basic knowledge in IP network
- Understanding basic network equipment

Objectives

On completion of this program, the participants will be able to:

- Describe mobile communications evolution and LTE network architecture
- Describe LTE mobile backhaul network requirements
- Describe LTE mobile backhaul network solutions

Duration

1 hour

Class Size

No limit

2.5.4 IP RAN SDN Solution Overview(WBT)

Training Path

IP RAN SDN Solution Overview(WBT)		
ODW22	WBT	1h

Target Audience

Mobile backhaul network senior operation and maintenance engineer
Manager

Prerequisites

Familiar with the IP RAN solution

Objectives

On completion of this program, the participants will be able to:

- Describe basic concepts of SDN technology
- Describe the requirement of IP RAN SDN solution
- Describe the implementation of IP RAN SDN solution

Duration

1 hour

Class Size

No limit