

Syllabus of Four Weeks Vocational Training Online Mode

Day	Topic	Mode
1.	Telecom Switching Network <ul style="list-style-type: none"> • Telecommunication Network • Evolution Of Electronic Exchange • Components Of PSTN Network • PCM Principles 	Online- Zoom
	Job Aid 1&2 <ul style="list-style-type: none"> • Identification of different telecom components • Identification of different customer premise equipment & Outdoor Equipment 	Supported by Video
2.	Overview of Digital Transmission Technology <ul style="list-style-type: none"> • Evolution of transmission systems • Transmission fundamentals, Types of multiplexing, Pulse Code Modulation • Evolution of digital multiplexing • Transport network and the road analogy 	Online- Zoom
	JobAid-3(Identification of different types of Transmission Media) <ul style="list-style-type: none"> • Standard Installation practice used for equipment • Identify the different types of Transmission media like CAT-5/CAT-6,Optical Fiber Cable, Antenna • Understand application of different Transmission media and Components. • Identify the different types of feeder Cable used in Radio Communication JobAid-4 (Identification of different types of Transmission System) <ul style="list-style-type: none"> • Identify the different types of Transmission media like PDH,SDH, Radio Systems, VSATe • Understand the Network Architecture and application of different Transmission System 	Supported by Video
3.	SDH TECHNOLOGY <ul style="list-style-type: none"> • S.D.H. evolution • SDH rates,STM-1 frame format, Path overhead • Network elements of SDH, SDH multiplexing structure and principle • Why synchronizing networks 	Online- Zoom
	Job Aid 5 (Identification of different types of Optical connectors & components used in OFC) <ul style="list-style-type: none"> • Identification of different types of Optical connectors & components used in Optical Fiber Systems and their applications. • Identify the different types of Optical Fiber connectors used in FDF/FDMS and in System • Understand application of different optical components • Locate the different Optical Component and their Connectivity in PDH/SDH System Job Aid 6 (Understanding the concept of SDH Technology using Multimedia) <ul style="list-style-type: none"> • Understanding the concept of SDH Technology using Multimedia • Multimedia of SDH 	Supported by Video

	<ul style="list-style-type: none"> • Understand the concept of SDH Technology • List down menus of Multimedia/CBT of SDH 	
4.	<p>FTTH & DWDM technology</p> <ul style="list-style-type: none"> • Why FTTH • Technology options for FTTH architecture • Services on FTTH network • DWDM, DWDM system function, varieties of WDM 	Online-Zoom
	<p>Job Aid 7 (Visit and demo of DWDM System)</p> <ul style="list-style-type: none"> • Identify the different optical network element and boards • Understand the network architecture of DWDM. <p>Job Aid 8 (Optical connectors, Splitters, ONTs & components of GEPON/GPON)</p> <ul style="list-style-type: none"> • Different types of Optical connectors • Different types of Splitters & applications • Different types of ONTs • GPON/GEPON OLTE 	Supported by Video
5.	<p>Overview of Telecom Infrastructure & PowerPlant</p> <ul style="list-style-type: none"> • Components of telecom support infrastructure • Sources of power • Commercial ac power supplies • Major subsystems of power plants 	Online-Zoom
	<p>Job Aid 9& 10</p> <ul style="list-style-type: none"> • Identify different Components of telecom support infrastructure and their role • Identify different parts of SMPS power plant • To trouble shoot with the help of trouble shooting chart 	Supported by Video
6.	<p>Broadband Network Overview</p> <ul style="list-style-type: none"> • Broadband Overview • Broadband Network Architecture & Components • Physical Layer Components 	Online-Zoom
	<p>Job Aid 11 & 12 (Demonstration & understanding of Network components used in Broadband)</p> <ul style="list-style-type: none"> • Understanding broadband Network Architecture • Identify the different cards in the DSLAM • Identify the different interfaces on the cards in the DSLAM • STM to Ethernet converters, Tier-1/Tier2 Switches, OCLAN Switches, BRAS/BNG etc 	Supported by Video
7.	<p>OSI & LAN concepts, Jumpering at MDF for broadband Connection/service</p> <ul style="list-style-type: none"> • Jumpering at Main Distribution Frame • Open System Interconnection Model • Local Area Networks 	Online-Zoom
	<p>Job Aid 13 & 14 (Demonstrations of different types of modems & cables)</p> <ul style="list-style-type: none"> • Jumpering arrangement at Main Distribution Frame of Exchange in case of an existing telephone user taking a BB connection 	Supported by Video

	<ul style="list-style-type: none"> • Observe the status of the ADSL port in the DSLAM • Jumpering arrangement at Main Distribution Frame of Exchange for Broadband • Understand Preparation of Straight Cable used for dissimilar devices 	
8.	<p>DSL Technologies, ADSL CPE & Security in WiFi Broadband access</p> <ul style="list-style-type: none"> • IPv4 Addressing • DSL Technologies • ADSL CPE • Securing WiFi BB Connection 	Online-Zoom
	<p>Job aid 15 & 16 (DSL Modem configuration and Wireless access)</p> <ul style="list-style-type: none"> • Understand the Steps To Configure TCP/IP settings in the PC/Laptop • Steps Configure Modem in Bridge/Dial-Up/Single-User Mode • Steps for making Broad Band Dialer at PC/Laptop • Understand Steps for securing wireless access of Broadband through DSL modem using WEP encryption 	Supported by Video
9.	<p>Digital Line Access Multiplexer (DSLAM), VLANs & Broadband Applications</p> <ul style="list-style-type: none"> • VLAN • DSLAM • Broadband Applications 	Online-Zoom
	<p>Job Aid 17 & 18 (VLAN and DSLAM)</p> <ul style="list-style-type: none"> • Understand commands to assign vlan • Understand Making the port as an Trunk Port • Testing VLANs using ping command • Understand Setting up Configuration Environment on a DSLAM 	Supported by Video
10.	<p>Broadband Speed Measurement, Troubleshooting Broadband Connection & Various Broadband Access Technologies</p> <ul style="list-style-type: none"> • Broadband Access Technologies • Troubleshooting Broadband Connection • Broadband Speed Constraints • Measuring speed of Broadband connection 	Online-Zoom
	<p>Job Aid 19 & 20 (BB using 3G/EVDO/FTTH/WiMAX , Troubleshooting ADSL)</p> <ul style="list-style-type: none"> • Identify the Modem(CPE) or card/Interface for Internet Access using 3G/ EVDO/ FTTH/WiMAX • Understand Set-up/Configuration of PC/Laptop for Internet Access using 3G/ EVDO/ FTTH/WiMAX • Identify the interfaces available on ADSL tester • Understand the testing facility available through ADSL tester 	Supported by Video
11.	<p>Optical Fiber Communication-an Overview</p> <ul style="list-style-type: none"> • Application area • Principle of opration • Types of fiber, types of cable, • FDF, FDMS, connectors, splice closures etc 	Online-Zoom

	<p>JobAid-21 (Identification of different types of Optical Fiber Cables, ducts and their applications)</p> <ul style="list-style-type: none"> • Different types of OF cable application wise • Laying methods • Types of ducts <p>JobAid-22 (Identification of components of OF cable, splice closures, Single mode and multimode pig tails and patch cord)</p> <ul style="list-style-type: none"> • Identification of component of OF cable • Types of Splice closures • Single mode and multi-mode pigtail and patch cord 	Supported by Video
12.	<p>Optical fiber splicing, connectors and couplers</p> <ul style="list-style-type: none"> • Different splicing techniques • Intrinsic and extrinsic splice losses • Principle of fusion splicing • Optical fiber cable splicing procedure 	Online-Zoom
	<p>Job Aid 23 (Cleaving of Optical fiber before splicing and operation of fusion splicing machine)</p> <ul style="list-style-type: none"> • Cleaving of Optical fiber before splicing • Operation of fusion splicing machine Method of cable end preparation <p>Job Aid 24 (Splicing of OF Cable)</p> <ul style="list-style-type: none"> • Splicing of OF Cable by Automatic Fusion Splicing Machine 	Supported by Video
13.	<p>Cable fault localization using OTDR</p> <ul style="list-style-type: none"> • Principle and uses of OTDR • Dead zone • Event Interpretation in OTDR • Measurement Artifacts and Anomalies in OTDR etc. 	Online-Zoom
	<p>Job Aid 25 (Use and operation of OTDR in Optical fiber Cable fault localization)</p> <ul style="list-style-type: none"> • Application of OTDR in OF Cable fault localization • Component of OTDR • Operation of OTDR etc. <p>Job Aid 26 (Fault localization in Optical Fiber Cable using OTDR)</p> <ul style="list-style-type: none"> • OTDR set up for OF Fault Localization • Loss measurement • Break event • Dead Zone etc 	Supported by Video
14.	<p>Overview of Mobile Communication</p> <ul style="list-style-type: none"> • Overview of Mobile Communication • Feeder Cable & VSWR • Mobile Antenna System • Cellular Concept and propagation model 	Online-Zoom
	<p>JobAid-27 [Mobile Antenna System]</p>	Supported

	<ul style="list-style-type: none"> • Identify various parts/ in Mobile Antenna system • Explain the functions of these Mobile Antenna system parts. • Explain about the ports and operating Bandwidths of the Antenna • Know about the electrical tilt and mechanical tilts of the Antenna <p>JobAid-28 [BTS Testing - Feeder Cable & VSWR]</p> <ul style="list-style-type: none"> • Identify various types of feeder cable • Explain the importance of VSWR • Explain how to measure the VSWR • Effects of VSWR 	by Video
15.	<p>3G/4G and 5G Mobile Communication</p> <ul style="list-style-type: none"> • Introduction to 3G UMTS • 4G Mobile Communication • Mobile Future Trends 5G 	Online-Zoom
	<p>JobAid-29 [Study and Analysis of GSM Radio Parameters]</p> <ul style="list-style-type: none"> • Understand the purpose and method to use Engineering Handset • Explain important Radio Parameters in GSM network. <p>JobAid-30 [Optimization of Network performance-Drive Test for GSM network & KPI monitoring]</p> <ul style="list-style-type: none"> • Understand the purpose and method to conduct Drive test for network optimization. • Explain and understand how to monitor important KPIs in GSM network 	Supported by Video
16.	<p>Networking Concepts, TCP/IP & MPLS</p> <ul style="list-style-type: none"> • TCP/IP model • Basic networking concepts • Network architecture & topology • Networking protocols and media access control 	Online-Zoom
	<p>Job Aid 31 [Managing Large network by dividing into smaller logical networks using concepts of subnetting & supernetting.]</p> <ul style="list-style-type: none"> • Convert Binary to Decimal and vice-versa • Assigning IPv4 & IPv6 Address to computer Check IP address assigned • Determine Network Address from an IP address • Create subnets from the given network address <p>Job Aid 32 [Managing, developing and troubleshooting Local Area Network and Identification of different types of cables router components & Interfaces]</p> <ul style="list-style-type: none"> • Create physical local area network • Troubleshoot the LAN and diagnose the faults • Identify the different types of cables like Console cable, CAT-5/ CAT-6, Optical fiber Routers, Router components and Router Interfaces • Routers, Router components and Router Interfaces 	Supported by Video
17.	<p>Router ARCHITECTURE & Routing Principles</p> <ul style="list-style-type: none"> • Router components and its functions • Routing principles • Types of routing, Routing algorithm 	Online-Zoom

	<p>Job Aid 33 [Preliminary configuration of router for internetworking of different networks.]</p> <ul style="list-style-type: none"> • Understanding the working of a router • Different types of show commands & their purpose • Assignment of IP address and enabling layer 3 connectivity <p>Job Aid 34 [Configuration of Router for providing WAN service to Local Area Network by Static/Dynamic Routing in an IP network]</p> <ul style="list-style-type: none"> • Understand the configuration of static/dynamic routing in cisco routers. • Analysis of output of ip route commands & their purpose 	Supported by Video
18.	<p>Information & Cyber Security</p> <ul style="list-style-type: none"> • Information security components • Managing information security • Technology and defense • Framework for information security 	Online-Zoom
	<p>Job Aid 35 [ANALYSING THE SECURITY OF HOSTS IN NETWORK USING TOOLS]</p> <ul style="list-style-type: none"> • Installation of security tool Professional Look at Net • Identify the parts of the main window of Professional Look at Net • Scan network with default setting of Professional Look at Net & analyse result. • Scan the ports of s-e-l-e-c-ted host of the network & Analyzer <p>Job Aid 36 [Implementing system and data security using windows firewall]</p> <ul style="list-style-type: none"> • Enabling and Disabling Windows firewalls • Allow a program/port to communicate through Windows Firewall • Block program/port to communicate through Windows Firewall 	Supported by Video
19.	<p>IoT and Industry 4.0</p>	Online-Zoom
	<p>Job Aid 37 and 38</p> <ul style="list-style-type: none"> • Industry Case Study 	Supported by Video
20.	<p>Assessment and Group Discussion , Presentation</p> <ul style="list-style-type: none"> • Assessment will be done • Group Presentation by Trainees- Online • Doubt Clearing • Certificate distribution -Online 	Online-Zoom
	<p>Job Aid 39 and 40</p> <ul style="list-style-type: none"> • Presentation by Trainees 	