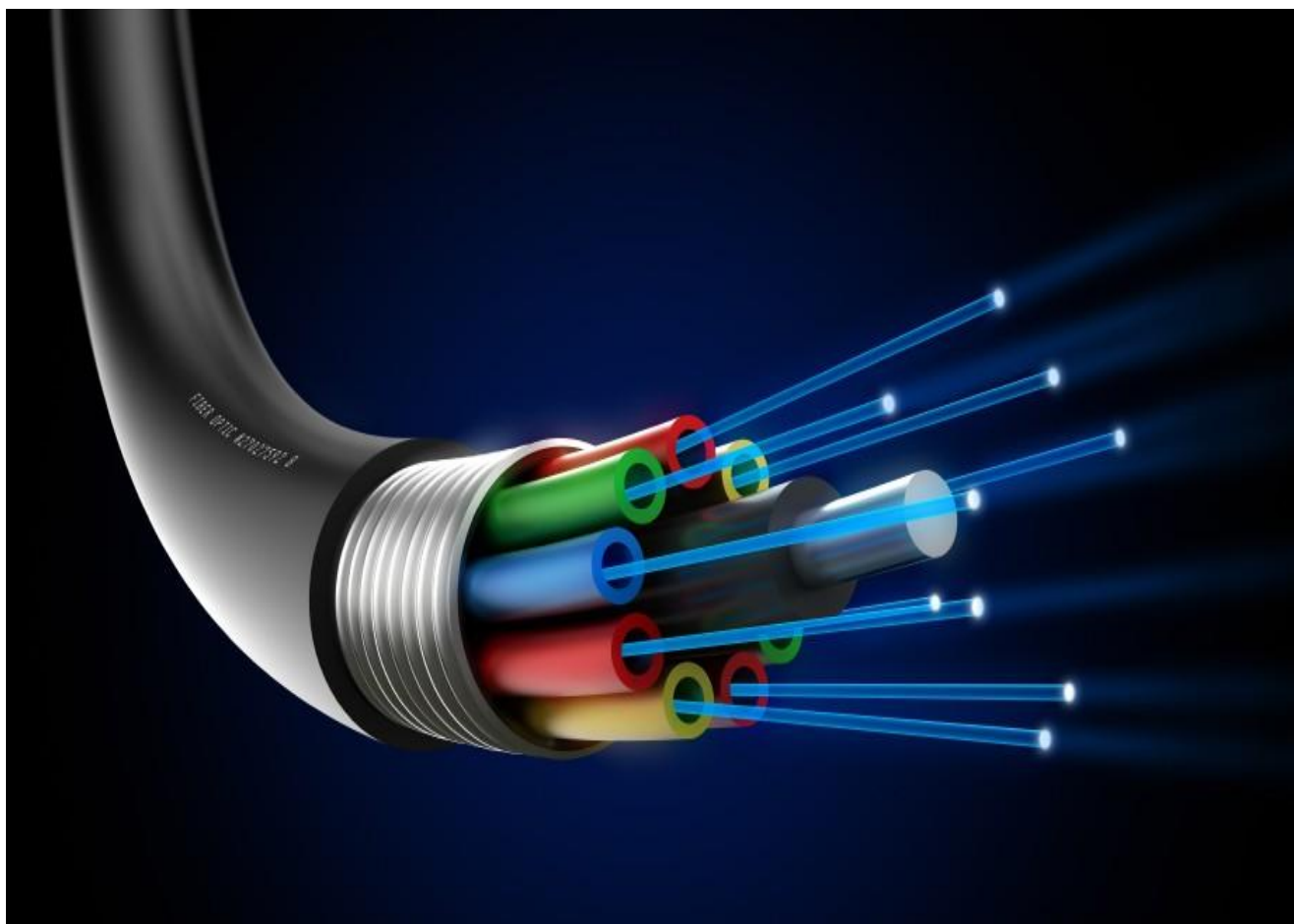




Model Curriculum

QP Name: Optical Fiber Technician

QP Code: TEL/Q6401

Version: 5.0

NSQF Level: 4.0

Model Curriculum Version: 5.0

Telecom Sector Skill Council || 3rd Floor, Plot No 126, Sector – 44 Gurgaon – 122003
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Training Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Operations and Maintenance - Passive Infrastructure
Country	India
NSQF Level	4.0
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.0206
Minimum Educational Qualification and Experience	12th grade Pass OR Completed 2nd year of the 3-year diploma after 10th in Electronics and Communication Engineering/ Electrical Engineering/ Telecommunication Engineering OR 10th Grade Pass with 3-years of experience in the operations and maintenance of passive infrastructure OR Previous relevant Qualification of NSQF Level 3 with 3 years of experience in the operations and maintenance of passive infrastructure OR Previous relevant Qualification of NSQF Level 3.5 with 1.5 years of experience in the operations and maintenance of passive infrastructure
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	08-05-2025
Next Review Date	30-04-2028
NSQC Approval Date	08-05-2025
QP Version	5.0
Model Curriculum Creation Date	07-03-2025
Model Curriculum Valid Up to Date	30-04-2028
Model Curriculum Version	5.0
Minimum Duration of the Course	480 Hours

Maximum Duration of the Course	480 Hours
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Program Overview

This section summarises the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Explain the key steps involved in coordinating the installation and commissioning of optical fiber cables (OFCs).
- Discuss the importance of condition-based maintenance and planned repair activities in telecom operations.
- Describe the process of performing corrective maintenance and restoring optical fiber faults effectively.
- Elucidate the role of sustainability practices in telecom cabling operations and their impact on the environment.
- Discuss the Employability and Entrepreneurship Skills.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory) (Hours)	On-the-Job Training Duration (Recommended) (Hours)	Total Duration (Hours)
TEL/N4137: Coordinate Installation and Commissioning of Optical Fiber Cables (OFCs) NOS Version No.: 3.0 NSQF Level: 4.0	30:00	80:00	70:00	00:00	180:00
Module 1: Introduction to the sector and the job role of an Optical Fiber Technician	05:00	00:00	00:00	00:00	05:00
Module 2: Route Planning and Cable Installation Coordination	15:00	45:00	30:00	00:00	90:00
Module 3: Splicing, Termination, and Cable Testing	05:00	20:00	20:00	00:00	45:00
Module 4: Safety Compliance and Documentation	05:00	15:00	20:00	00:00	40:00
TEL/N6403: Undertake Condition based Maintenance and Planned Repair Activities NOS Version No.: 4.0	20:00	60:00	40:00	00:00	120:00

NSQF Level: 4.0					
Module 5: Condition-Based Maintenance and Planned Repair of Optical Fiber Network	20:00	60:00	40:00	00:00	120:00
TEL/N6404: Perform Corrective Maintenance/Restoration of Optical Fiber Faults NOS Version No.: 4.0 NSQF Level: 4.0	30:00	50:00	40:00	00:00	120:00
Module 6: Perform Fault Diagnosis and Corrective Maintenance of Optical Fiber Networks	30:00	50:00	40:00	00:00	120:00
TEL/N9111: Follow sustainability practices in telecom cabling operations NOS Version No.: 1.0 NSQF Level: 4.0	10:00	20:00	00:00	00:00	30:00
Module 7: Sustainability Practices in Telecom Cabling Operations	10:00	20:00	00:00	00:00	30:00
DGT/VSQ/N0101: Employability Skills (30 Hours) NOS Version No.: 1.0 NSQF Level: 2	30:00	00:00	00:00	00:00	30:00
Module 8: Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	120:00	210:00	150:00	00:00	480:00

Module Details

Module 1: Introduction to the sector and the job role of an Optical Fiber Technician

Mapped to TEL/N4137, v3.0

Terminal Outcomes:

- Explain the importance of Telecom Sector.
- Discuss the roles and responsibilities of an Optical Fiber Technician.

Duration (in hours): 05:00	Duration (in hours): 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain the significance of the telecom sector in the installation and maintenance of optical fiber networks. • Elucidate the key skills and technical expertise required for an Optical Fiber Technician. • Describe the challenges faced in splicing, testing, and troubleshooting optical fiber cables in telecom networks. • Determine the impact of precision and quality control in optical fiber installation and maintenance for reliable telecom services. • Discuss the roles and responsibilities of an Optical Fiber Technician in ensuring efficient and high-quality network performance.	
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Route Planning and Cable Installation Coordination

Mapped to TEL/N4137, v3.0

Terminal Outcomes:

- Explain the key steps involved in inspecting the route plan for optical fiber cable installation.
- Elucidate the process of coordinating cable laying and pulling to ensure compliance with industry standards.

Duration (in hours): 15:00	Duration (in hours): 45:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain the importance of standard reporting, documentation, and as-built diagram protocols in optical fiber installation. • Elucidate the basics of network design, including LAN/WAN integration and patch panel management. • Describe the standard procedures for trenching, cable laying, splicing, jointing, blowing, and back-filling. • Discuss the procedures for sealing joints using heat shrinking, multi-diameter seals, and mechanical seals. • Explain the installation procedures for ultra-low loss cables and their significance in network performance. • Determine the key steps involved in developing an effective installation work plan. • Discuss the different types of clearances and municipal approvals required for optical fiber installation work. • Describe the methods for managing labor and coordinating with third-party vendors in optical fiber projects.	• Demonstrate how to obtain and review the OFC route plan from the planning team or supervisor. • Show how to verify the proposed route, ensuring compliance with manufacturer-specified bend ratios and industry standards. • Demonstrate how to identify dependencies and create an effective installation work plan. • Show how to determine the required statutory permissions and liaise with relevant authorities to secure clearances. • Demonstrate how to ensure compatibility of ultra-low loss cables with project requirements. • Show how to select the appropriate optical fiber mode (Single Mode or Multi-Mode) based on the project location and network design. • Demonstrate how to arrange tools, including advanced cable-handling equipment and spares, for installation. • Show how to confirm the proper placement of the cable drum at the site. • Demonstrate how to test cables on the drum for optical continuity. • Show how to supervise trenching to ensure it is carried out as per the route plan and site terrain. • Demonstrate how to ensure adherence to manufacturer-specified bend radii and manage tension during installation.

	• Show how to use specially designed dispensers for accurate duct placement in trenches. • Demonstrate how to check pipe/duct depths for compliance with laying standards and rectify collapsed or twisted ducts. • Show how to confirm ducts are clean and sealed with appropriate end plugs to prevent contamination. • Demonstrate how to oversee cable blowing/jetting using advanced blowing machines. • Show how to verify additional cable length (loop) is available at jointing locations for future use. • Demonstrate how to ensure proper uncoiling and alignment of PLB ducts. • Show how to confirm the use of protective materials such as GI or RCC pipes where necessary.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Tweezers, Splices, Fusion Splicer (Splicing Machine), Fiber Optic Test Source, Fiber Optic Stripper, Fiber Optic Power Meter, Connectors, Connector Crimper, Cleaver, Cable Splitter, Cable Jacket Stripper, Cable Cutter	

Module 3: Splicing, Termination, and Cable Testing

Mapped to TEL/N4137, v3.0

Terminal Outcomes:

- Describe the techniques used for multi-fiber splicing and termination to achieve minimal signal loss.
- Determine the effectiveness of cable installation by testing and validating signal transmission.

Duration (in hours): 05:00	Duration (in hours): 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain the principles of optical transport media and OFC communication. • Elucidate the characteristics of optical fibers, including refraction, polarization, attenuation, and dispersion. • Discuss the impact of different wavelength bands on signal transmission in optical fiber networks. • Describe the compatibility requirements for advanced connectors and protection sleeves in OFC installations. • Explain the different types of OFC connectors based on equipment specifications and their applications. • Determine the functionality and usage of optical equipment like cleavers, fusion splicers, and mechanical splicing kits. • Discuss the operation and importance of fiber strippers, protection sleeves, and fiber-reinforced plaster in fiber optic installation. • Describe the use of advanced tools like multi-joiner fusion splicers and cable blowing machines in optical fiber deployment. • Explain the working principles of optical test equipment like OTDR, power meters, and light meters. • Determine the optimal values for OTDR, power meter, and light meter test results to ensure network efficiency. • Discuss the importance of spare part management and the repair/return processes for faulty optical fiber equipment.	• Demonstrate how to verify the availability and proper operation of advanced multi-joiner fusion splicers. • Show how to supervise multi-fiber splicing to ensure proper alignment and minimal signal loss. • Demonstrate how to use advanced protection sleeves and connectors during fiber termination. • Show how to follow step-by-step splicing and termination techniques to maintain quality standards. • Demonstrate how to test for signal attenuation and re-terminate fiber connections if required. • Show how to use advanced testing tools like OTDR, power meters, and light meters to validate optical fiber installations. • Demonstrate how to identify and eliminate cross-fiber issues using power source and power meter tests. • Show how to ensure splice quality meets established quality assurance standards. • Demonstrate how to perform final transmission loss tests and rectify any issues exceeding manufacturer specifications. • Show how to check for proper backfilling, crowning, and the installation of route/joint markers. • Demonstrate how to update as-built documentation with accurate joint locations and installed fiber routes. • Show how to ensure site cleanup and proper disposal of debris after fiber optic installation.
Classroom Aids	

Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films

Tools, Equipment and Other Requirements

Tweezers, Splices, Fusion Splicer (Splicing Machine), Fiber Optic Test Source, Fiber Optic Stripper, Fiber Optic Power Meter, Connectors, Connector Crimper, Cleaver, Cable Splitter, Cable Jacket Stripper, Cable Cutter

Module 4: Safety Compliance and Documentation

Mapped to TEL/N4137, v3.0

Terminal Outcomes:

- Discuss the importance of adhering to health and safety guidelines in optical fiber installation projects.
- Explain the significance of reporting and recording installation activities for project tracking and fault management.

Duration (in hours): 05:00	Duration (in hours): 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain the importance of Occupational Health and Safety (OHS) and environmental regulations in optical fiber installation. • Discuss quality assurance, Acceptance Testing (AT) standards, and key signal quality KPIs in fiber optic networks. • Describe the correct usage of relevant Personal Protective Equipment (PPE) for optical fiber technicians. • Elucidate the precautionary measures required for electrical, chemical, and environmental hazards in fiber optic operations. • Determine the proper usage of fire safety equipment and essential first aid procedures for workplace safety. • Discuss the standard procedures for the disposal of cut fibers and other waste materials in compliance with environmental guidelines.	• Demonstrate how to comply with site-specific risk controls, OHS guidelines, and environmental regulations. • Show how to use appropriate PPE, including helmets, knee pads, safety boots, and trench guards, for safety compliance. • Demonstrate how to manage environmental hazards such as Earth Potential Rise (EPR) effectively during fiber installation. • Show how to adhere to emergency protocols in case of safety incidents on-site. • Demonstrate how to ensure cleanliness and proper handling of optical fibers to prevent contamination. • Show how to record cable ID and drum numbers for accurate fault localization. • Demonstrate how to document test reports, including OTDR results, and share them with relevant teams. • Show how to obtain sign-off from project teams and update the network operations center (NOC) for seamless integration. • Demonstrate how to maintain all installation documents properly for audits and inspections.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	

Tweezers, Splices, Fusion Splicer (Splicing Machine), Fiber Optic Test Source, Fiber Optic Stripper, Fiber Optic Power Meter, Connectors, Connector Crimper, Cleaver, Cable Splitter, Cable Jacket Stripper, Cable Cutter

Module 5: Condition-Based Maintenance and Planned Repair of Optical Fiber Network

Mapped to TEL/N6403, v4.0

Terminal Outcomes:

- Explain the process of obtaining a maintenance schedule and patrolling the assigned route for optical fiber upkeep.
- Elucidate the steps involved in carrying out maintenance testing of dark/spare optical fiber cables (OFCs).
- Describe the key procedures for repairing optical fiber cables as per the maintenance plan.
- Discuss the importance of carrying out equipment maintenance at Points of Presence (POPs) to ensure network reliability.
- Determine the best practices for recording and reporting fiber test results for accurate troubleshooting and documentation.

Duration (in hours): 20:00	Duration (in hours): 60:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain the applicable reporting and documentation procedures for fiber optic maintenance. • Elucidate the Standard Operating Procedures (SOPs) for the maintenance of fiber optics, POP equipment, and Synchronous Transport Modules (STMs). • Discuss the concept, elements, and importance of maintaining up-to-date as-built documentation. • Describe the procedures for maintaining task-specific documentation, such as the patrolling register and OTDR register. • Explain the standard maintenance processes for optical fiber cables (OFCs) and related equipment. • Describe the types of testing and repair procedures, including advanced fusion splicers and new OTDR/VFL techniques. • Discuss OFC preventative maintenance techniques and industry best practices. • Explain the procedures for physical maintenance tasks and safe handling protocols to prevent fiber contamination. • Elucidate the principles of optical transport media and OFC communication. • Describe optical fiber wavelength bands, their usability, and loss characteristics. • Determine signal strength, quality KPIs, and measurement of attenuation/loss in fiber optic networks.	• Demonstrate how to obtain as-built drawings from NOC/supervisors and identify the assigned maintenance route for Optical Fiber Cables (OFCs). • Show how to conduct patrolling and surveillance of OFC routes as per the maintenance plan and monitor third-party activities near the network to ensure OFC safety. • Demonstrate how to coordinate with authorities regarding planned construction or activities near OFCs to prevent damage. • Show how to follow preventative maintenance measures and schedules to ensure the longevity and performance of OFCs. • Demonstrate how to perform sample checks of as-built drawings and communicate updates to NOC/supervisors for documentation. • Show how to use advanced tools like OTDR, Power Meter, Light Meter, and Visual Fault Locator (VFL) for maintenance testing of dark/spare OFCs. • Demonstrate how to perform OTDR and power meter tests on dark/spare fibers periodically, measure attenuation/loss, and interpret test results to identify transmission losses and reflection points.

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| <ul style="list-style-type: none"> • Explain the optimal values for OTDR, power meter, and light meter test results. • Describe the proper trenching, cable laying, pit preparation, splicing, jointing, blowing, and backfilling processes for OFC installation. • Discuss the different types of OFC connectors based on equipment compatibility. | <ul style="list-style-type: none"> • Show how to advise the planning team on route strengthening based on fiber test results. • Demonstrate how to arrange an outage in coordination with the NOC before repair activities. • Show how to use advanced multi-jointer fusion splicers for OFC repair while minimizing signal loss. • Demonstrate how to complete planned repair activities within defined timelines and conduct optical tests on spare fibers to confirm repair effectiveness. • Show how to follow necessary precautions when testing active fibers to prevent disruptions and escalate delays/unresolved issues as per organizational procedures. • Demonstrate how to perform periodic maintenance (monthly, quarterly, half-yearly) of equipment at Points of Presence (POPs) and maintain co-located electronic equipment. • Show how to coordinate with NOC to test alarms, conduct planned joint/termination repairs for link margin improvement, and ensure active fibers remain undisturbed during maintenance. • Demonstrate how to raise maintenance requests for third-party elements through the NOC. • Show how to maintain OFC/OTDR registers with records of fiber tests conducted and track diesel oil usage at respective sites. • Demonstrate how to dispatch OTDR test results to supervisors for network planning and monitoring. • Show how to ensure all documents are available for inspection by appropriate authorities. |
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Classroom Aids

Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films

Tools, Equipment and Other Requirements

Tweezers, Splices, Fusion Splicer (Splicing Machine), Fiber Optic Test Source, Fiber Optic Stripper, Fiber Optic Power Meter, Connectors, Connector Crimper, Cleaver, Cable Splitter, Cable Jacket Stripper, Cable Cutter

Module 6: Perform Fault Diagnosis and Corrective Maintenance of Optical Fiber Networks

Mapped to TEL/N6404, v4.0

Terminal Outcomes:

- Explain the process of handling fault notifications in an optical fiber network.
- Describe the steps involved in rectifying faults at Points of Presence (POPs).
- Discuss the importance of documenting and reporting fault rectification status.

Duration (in hours): 30:00	Duration (in hours): 50:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain the applicable reporting and documentation standards for optical fiber maintenance. • Describe the Standard Operating Procedures (SOPs) for OFC maintenance and fault rectification. • Elucidate the requirements for documentation management, including updating OTDR registers and as-built diagrams. • Discuss the functionalities of advanced OTDR and how to interpret OTDR traces for fault diagnosis. • Explain Wavelength Division Multiplexing (WDM) fundamentals and troubleshooting techniques. • Describe the techniques for diagnosing and rectifying faults in optical fiber systems using specialized tools. • Determine the testing procedures for duct integrity, including air-tightness and kink-free tests. • Explain the key characteristics of fiber optics, including refraction, polarization, attenuation, and dispersion. • Discuss signal strength and quality Key Performance Indicators (KPIs) used in optical fiber networks. • Describe network design principles and fiber optic system integration. • Explain the best practices in trenching, splicing, jointing, blowing, and back-filling in OFC installation. • Discuss proper fiber cable termination techniques, including the use of advanced protection sleeves and connectors.	• Demonstrate how to interpret fault notifications received from the Network Operation Center (NOC) or supervisors. • Show how to determine Turn Around Time (TAT) for fault rectification based on Service Level Agreements (SLAs). • Demonstrate how to access and interpret as-built drawings for fault location analysis. • Show how to verify the necessary tools and safety gear before heading to a fault location. • Demonstrate how to use advanced test equipment (OTDR, power meter, light sources, precision cutters, etc.) for fiber testing and troubleshooting. • Show how to identify fault locations using OTDR traces, signal loss patterns, and Wavelength Division Multiplexing (WDM) analysis. • Demonstrate how to interpret as-built drawings to locate physical sites and underground cable routes. • Show how to coordinate excavation, cable pulling, and preparation of jointing pits if required. • Demonstrate the proper technique for fiber splicing using advanced protection sleeves and connectors. • Show how to analyze OTDR and power meter test results to assess splicing effectiveness. • Demonstrate how to secure fiber joints using couplers, sleeves, and Fiber Reinforced Plastic (FRP). • Show how to evaluate the need for additional duct protection (e.g., RCC pipes, chambering) based on site conditions.

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| <ul style="list-style-type: none"> • Describe the route and cable marking conventions for long-term maintenance and identification. • Explain the compliance requirements for safe excavation and installation in various terrains. • Safety, Environmental Considerations, and Emergency Protocols • Discuss environmental safety and risk management practices in fiber network maintenance. • Elucidate emergency response protocols for handling optical fiber damage and minimizing downtime. | <ul style="list-style-type: none"> • Demonstrate the correct procedure for back-filling trenches while ensuring structural integrity and environmental safety. • Show how to verify fault rectification by performing final OTDR tests and confirming network stability. • Demonstrate how to monitor and supervise fault rectification activities to ensure adherence to SLAs and minimize downtime. • Show how to escalate unresolved faults or significant delays according to organizational policies. • Demonstrate how to accurately mark cables and place route markers for future maintenance. • Show how to maintain comprehensive jointing records, including OTDR test reports and loss analysis. • Demonstrate how to update all relevant documents, including as-built diagrams and OTDR registers. • Show how to archive historical data for fault trends and preventive maintenance planning. • Demonstrate compliance with industry standards for documentation and reporting. |
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Classroom Aids

Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films

Tools, Equipment and Other Requirements

Tweezers, Splices, Fusion Splicer (Splicing Machine), Fiber Optic Test Source, Fiber Optic Stripper, Fiber Optic Power Meter, Connectors, Connector Crimper, Cleaver, Cable Splitter, Cable Jacket Stripper, Cable Cutter

Module 7: Sustainability Practices in Telecom Cabling Operations

Mapped to TEL/N9111, v1.0

Terminal Outcomes:

- Identify recyclable, reusable, and hazardous materials in fiber optic installations and explain how to categorize them.
- Describe the waste management, recycling, and disposal protocols for materials used in fiber optic installations.
- Explain how to optimize material and energy usage during cabling work in fiber optic installations.
- Discuss the environmental and regulatory standards that must be complied with during fiber optic installations.

Duration (in hours): 10:00	Duration (in hours): 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain organizational policies on sustainability, waste reduction, and material reuse in telecom infrastructure projects. • Describe the procedures for recycling, hazardous waste handling, and safe disposal of telecom-related materials. • Discuss the importance of sustainability in long-term infrastructure planning and the environmental impact of telecom waste. • Elucidate the classification of materials used in optical fiber cabling, including recyclable, reusable, and hazardous components. • Explain standard waste management procedures for telecom operations, including segregation, labeling, and disposal methods. • Describe methods to reduce material wastage, such as accurate measurements, careful handling of fiber optic cables, and optimized trenching techniques. • Discuss the environmental hazards associated with improper disposal of optical fibers, batteries, and chemical adhesives. • Explain the regulations and compliance requirements for hazardous material disposal under national and international environmental laws. • Elucidate energy-efficient work practices, including low-power tools, optimized route	• Demonstrate how to identify, segregate, and store materials used in cabling operations, including recyclable, reusable, and hazardous materials, ensuring compliance with safety and waste management procedures. • Show how to follow SOPs for safe handling, disposal, and documentation of non-recyclable and hazardous materials, including fiber shards, cable sheaths, and chemical adhesives. • Demonstrate how to ensure proper labeling, safe storage, and disposal of hazardous waste to prevent contamination or accidents. • Show how to minimize waste by reducing excess material use, reusing components, and optimizing cabling work through accurate measurements and efficient layout designs. • Demonstrate how to maintain clean, organized work sites to prevent environmental contamination, promote safety, and comply with environmental guidelines. • Show how to use energy-efficient tools and machinery and ensure proper maintenance of cabling tools and equipment to reduce

planning, and reduced excavation techniques. Describe the importance of proper record-keeping for disposal and recycling to ensure compliance and accountability.	material consumption and unnecessary repairs. - Demonstrate how to coordinate and dispose of waste materials at designated collection points and report any violations or environmental hazards. - Show how to use and promote eco-friendly materials, such as low-impact protective coatings and biodegradable packaging. - Demonstrate how to follow national and local environmental regulations, workplace policies, and sustainability practices related to telecom cabling operations. - Show how to maintain accurate documentation of sustainability activities, including logs of disposed and recycled materials, to meet regulatory and audit requirements. - Demonstrate how to conduct periodic self-audits and educate team members on best practices for sustainability, waste segregation, and responsible energy consumption. - Show how to report violations of environmental policies, hazardous material spills, or unsafe disposal practices to the designated supervisor or regulatory body.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Waste Segregation Bins, Optical Fiber Disposal Unit, Environmental Compliance Documentation System, Personal Protection Equipment: Safety Glasses, Head Protection, Rubber Gloves, Safety Footwear, Warning Signs and Tapes, Fire Extinguisher and First Aid Kit	

Module 8: Employability Skills (30 Hours)

Mapped to DGT/VSQ/N0101, v1.0

Duration: 30:00 Hours

Key Learning Outcomes

Introduction to Employability Skills Duration: 1 Hour

After completing this programme, participants will be able to:

1. Discuss the importance of Employability Skills in meeting the job requirements

Constitutional values - Citizenship Duration: 1 Hour

2. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.
3. Show how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 1 Hour

4. Discuss 21st-century skills.
5. Display a positive attitude, self-motivation, problem-solving, time management skills and continuous learning mindset in different situations.

Basic English Skills Duration: 2 Hours

6. Use appropriate basic English sentences/phrases while speaking

Communication Skills Duration: 4 Hours

7. Demonstrate how to communicate in a well-mannered way with others.
8. Demonstrate working with others in a team

Diversity & Inclusion Duration: 1 Hour

9. Show how to conduct oneself appropriately with all genders and PwD
10. Discuss the significance of reporting sexual harassment issues in time

Financial and Legal Literacy Duration: 4 Hours

11. Discuss the significance of using financial products and services safely and securely.
12. Explain the importance of managing expenses, income, and savings.
13. Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws

Essential Digital Skills Duration: 3 Hours

14. Show how to operate digital devices and use the associated applications and features, safely and securely
15. Discuss the significance of using the internet for browsing, and accessing social media platforms, safely and securely

Entrepreneurship Duration: 7 Hours

16. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges

Customer Service Duration: 4 Hours

17. Differentiate between types of customers

18. Explain the significance of identifying customer needs and addressing them

19. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for Apprenticeship & Jobs Duration: 2 Hours

20. Create a biodata

21. Use various sources to search and apply for jobs

22. Discuss the significance of dressing up neatly and maintaining hygiene for an interview

23. Discuss how to search and register for apprenticeship opportunities

Module 9: On-the-Job Training

Mapped to Optical Fiber Technician

Mandatory Duration: 150:00	Recommended Duration: 00:00
Location: On-Site	
Terminal Outcomes • Demonstrate the key steps involved in inspecting the route plan for optical fiber cable installation. • Show how to coordinate cable laying and pulling to ensure compliance with industry standards. • Demonstrate the techniques used for multi-fiber splicing and termination to achieve minimal signal loss. • Show how to test and validate signal transmission to determine the effectiveness of cable installation. • Demonstrate adherence to health and safety guidelines in optical fiber installation projects. • Show how to report and record installation activities for project tracking and fault management. • Demonstrate the process of obtaining a maintenance schedule and patrolling the assigned route for optical fiber upkeep. • Show how to carry out maintenance testing of dark/spare optical fiber cables (OFCs). • Demonstrate the key procedures for repairing optical fiber cables as per the maintenance plan. • Show how to carry out equipment maintenance at Points of Presence (POPs) to ensure network reliability. • Demonstrate the best practices for recording and reporting fiber test results for accurate troubleshooting and documentation. • Show how to handle fault notifications in an optical fiber network. • Demonstrate the steps involved in rectifying faults at Points of Presence (POPs). • Show how to document and report fault rectification status. • Demonstrate how to identify recyclable, reusable, and hazardous materials in fiber optic installations and categorize them. • Show how to apply waste management, recycling, and disposal protocols for materials used in fiber optic installations. • Demonstrate how to optimize material and energy usage during cabling work in fiber optic installations. • Show how to comply with environmental and regulatory standards during fiber optic installations.	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialisation	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate	Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields	6	Optical Fiber Domain			

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Optical Fiber Technician” mapped to QP: “TEL/Q6401, v5.0”. Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: “Trainer (VET and Skills)”, mapped to the Qualification Pack: “MEP/Q2601, v3.0”. The minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate	Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields	6	Optical Fiber Domain			

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Optical Fiber Technician” mapped to QP: “TEL/Q6401, v5.0”. Minimum accepted score is 80%.	Certified for the Job Role: “Assessor (VET and Skills)”, mapped to the Qualification Pack: “MEP/Q2701, v3.0”, with a minimum score of 80%.

Assessment Strategy

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SDSM/SIP or email
- Assessment agencies send the assessment confirmation to VTP/TC looping SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process & records

2. Testing Environment:

- Confirm that the centre is available at the same address as mentioned on SDMS or SIP
- Check the duration of the training.
- Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
- If the batch size is more than 30, then there should be 2 Assessors.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
- Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
- Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
- Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:

- Question papers created by the Subject Matter Experts (SME)
- Question papers created by the SME verified by the other subject Matter Experts
- Questions are mapped with NOS and PC
- Question papers are prepared considering that levels 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
- Assessor must be ToA certified & trainer must be ToT Certified
- Assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Center photographs with signboards and scheme specific branding
- Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
- Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:

- Surprise visit to the assessment location
- Random audit of the batch
- Random audit of any candidate

6. Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored

- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
- Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

The trainee will be tested for the acquired skill, knowledge and attitude through formative/summative assessment at the end of the course and as this NOS and MC is adopted across sectors and qualifications, the respective AB can conduct the assessments as per their requirements.

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective, or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do it upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
NCVET	National Council for Vocational Education and Training
QP	Qualification Pack
MC	Model Curriculum
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
NCO	National Classification of Occupations
ES	Employability Skills
TSSC	Telecom Sector Skill Council
TRAI	Telecom Regulatory Authority of India
LAN	Local Area Network
WAN	Wide Area Network
GI	Galvanized Iron
RCC	Reinforced Cement Concrete
PLB	Permanently Lubricated Duct
OTDR	Optical Time-Domain Reflectometer
OHS	Occupational Health and Safety
EPR	Earth Potential Rise
AT	Acceptance Testing
NOC	Network Operations Center
OFCs	Optical Fiber Cables
STMs	Synchronous Transport Modules
VFL	Visual Fault Locator
POPs	Points of Presence
NOC	Network Operation Center
TAT	Turn Around Time
SLAs	Service Level Agreements
KPIs	Key Performance Indicators
WDM	Wavelength Division Multiplexing
FRP	Fiber Reinforced Plastic