

Skill Development Training



Skill India
कौशल भारत - कुशल भारत

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CHM-A level (TL/S/L5/C066N)

PERSONEL COMPUTER AND ITS HARDWARE

- Introduction and Terminologies
- Evolution of Software
- Installing PC
- Hardware Components
- Introduction to functions of CPU
- Memory, Input, Output, and Storage Devices
- Operating Systems (Windows/ Linux)
- Internet and Online Services
- Troubleshooting PC problems and errors
- PC-peripherals- Installation, repairing & maintenance

Upgrading/ Repairing PC Hardware & Software

- PC- Components, features and architecture
- Microprocessor and Microcontroller- Architecture, types and application
- Microprocessor-Past to Present
- Installation of software and hardware
- CPU Operating Voltages
- Math Coprocessor (Floating point Units)
- Processor Generations and Multi core-processors
- Processor Upgrades and troubleshooting Techniques
- Motherboards, chipsets and Buses
- System Bus Types, functions and features
- system resources
- Resolving Resources Conflicts
- Mother Board selection criteria

BIOS and Memory

- Introduction to BIOS Hardware/ Software
- Mother board ROM BIOS
- Upgrading the BIOS
- Understanding SDRAM, RDRAM and other types of memory
- Memory Banks and memory modules speed
- Installing RAM upgrades, DIMM, RIMM, and SIMM Modules
- Troubleshooting Memory
- System Logical Memory Layout

Storage and Hard Drives

- Magnetic Storage Principles
- Hard Disk Storage
- Hard Disk Drive Operation

- Hard disk drive components and features
- Flash memory Devices
- Optical Storage
- CDs, DVDs HD-DVDs
- How to reliably record optical discs
- Troubleshooting optical drives

VIDEO AND AUDIO

- Display Adapters and Monitors
- Video Display Adapters
- Video Display Interfaces
- Video Troubleshooting and maintenance
- Audio Hardware Features
- Sound Cards
- Troubleshooting PC Audio Problems
- Speakers and Microphones
- External I/O Interfaces

INTERNET AND NETWORKING

- Input Devices
- Introduction to Network Topologies
- OSI and TCP/IP Model
- Fabrication Ethernet Wire
- IP classes and IP distribution
- Network Protocols
- Installation of Network Devices
- Configuring Network Devices
- Troubleshooting Network Devices
- Software for Planning Network
- Connecting PC with wired and wireless Internet Services
- Securing and sharing Internet Connection
- Network Diagnostics, testing and Maintenance

Networking with Advanced Components

- Understanding Server
- Configuring Server with Network
- Mailing from Server
- Understanding Firewall
- Making Firewall with Server
- Troubleshooting Server
- Introduction to Cloud-storage



Installation Technician - Computing and Peripherals (TL/S/L3/C024N)

FUNDAMENTALS OF PC

- Introduction and Terminologies
- Hardware Components
- Introduction to functions of CPU
- Memory, Input, Output, and Storage Devices
- Operating Systems (Windows/Linux)
- Company standards, norms and policy

INSTALL AND CONFIGURE

- Assembling of PC
- Connecting of PC Components
- Connect different types of Peripherals
- Installing PC's Operating System
- Configuring Network Devices
- Fabricating Different types of Ethernet Wires
- Select Tools and equipments for Installation
- Check and ensure proper working of PC
- Follow company's norms for proper setup and configuration

TROUBLE-SHOOTING AND REPLACING

- Understanding the symptoms and identify the faults
- Repairing PC components
- operating various tools and equipments
- knowledge of under warranty incidents
- steps to follow safety procedure while handling equipment /tools

CUSTOMER HANDLING

- Understand customer's problem and suggest possible problem
- Do's and Don'ts while handling field calls dealing with customers
- Importance of Personal Grooming
- Understand incident life cycle
- Acknowledging customer for non-occurrence of recurring incidents and safety process

Coordination with Colleagues

- Understanding working environment
- Understanding working requirement

- Communicate effectively
- Building Team- coordination
- Escalate reports and issues in a proper manner of approach



Assembly and Maintenance of PC (TL/S/L2/C058)

PC Hardware overview:

- Introduction to Computer
- Uses of Computer
- Difference between hardware & software
- Different types of computer inside pc and its peripherals devices
- Booting concept:
 - Window environment
 - DOS
- Input devices
 - Keyboard, mouse, scanner, digital camera, Barcode Reader, Pen / Stylus, Touch Screen, Webcam
 - Output devices, Monitors, graphic plotter ,printer Cable
- Different identifications
 - Connectors identification
 - Motherboard identification
 - Controller cards
 - Display cards
 - Sound cards
 - AGP cards
 - FAX/modem cards
 - TV tuner cards
 - LAN cards
 - Ethernet cards
- Different types of RAM used in PC's

Setting-up of Windows Operating Systems and Application Programs:

- BIOS setting
- Formatting of hard disk
- Installation of operating system
 - DOS/ windows
 - Off-line drive installation
 - On-line drive installation
- Driver backup
- Restore
- Partition formatting
- Windows file repairing
- Password break
 - BIOS password break
 - Administrative password break
- Data recovery
 - Physical hard drive failure
 - Logical drive failure
- Pen Driver bootable
- USB problem
- LAN problem

Software Installation & Upgrades:

- Application Software Installation
- Different types of Application Software
 - Word Processing Software
 - Database Software
 - Spreadsheet Software
 - Multimedia Software
 - Presentation Software
- Antivirus Software Installation
- Types of antivirus software
 - Stand-Alone Antivirus Software
 - Malware Protection Antivirus Software
 - Fake Antivirus Software
- Protect PC from virus
- Hard disk utility software
- Dual Booting Installation etc

Trouble shooting of computers, Component and peripherals:

- System integration of different types of computers,
- Such as PC, PC-XT, PC –AT etc
- Pentium-4 label,
- Trouble shooting
- Shooting of different types of faults
- Different computer cards identifications and trouble shooting

- Power supplies installation and trouble shooting
- Different types of SMPS identifications
- Hard Disk drive installation and configuration setting
- Use of CD ROM and DVD
- Drivers
- Using of FDD drive
- Monitors
 - Different types of monitors
 - Monitors Repairing/Maintenance
 - Mouse repairing and Installation
- Keyboards
 - Different types of keyboards
 - Repairing and maintenance

Peripheral components and working:

- Printers
 - Types of printers
 - Working of printers
 - Working / repairing of DMP printers
 - Working / repairing of inkjet printer
 - Working / repairing of LaserJet printer
- Checking of printer interface cable and dip switch setting
- self test and loading of printer drives
- Introduction to UPS
 - Types of UPS
 - Maintenance and servicing of UPS
 - Battery replacement of UPS

Assembling the Computer System:

- Introduction and steps for assembling and disassembling of the Computer system
- Assembly and dismantling of PCs front panel connection
- Preventing, maintenance and Cleaning
- Servicing of computer
- Type of Backup
- Taking Backup files and fine tuning the system
- Running diagnostics tool
- Running of virus protection programme



CHM-O level (TL/S/L4/C064N)

COMPUTER HARDWARE AND PERIPHERALS

- Terminology
- Hardware Components
- Introduction to functions of CPU
- Memory, Input, Output, and Storage Devices
- Operating Systems (Windows/Linux)
- Internet and Online Services
- Introduction to PC Peripherals

Installation, troubleshooting and Maintenance

- Installation of Computer
- Installation of Computer Peripherals
- Installing different types of Operating systems
- Installation of Modem and Internet Routers
- Trouble-shooting of Computer and its components
- Trouble-shooting of computer's peripherals such as Printers, Scanner etc.
- Maintenance of different kinds of Motherboards
- Maintenance of CPU and its components

SYSTEM SOFTWARE

- Introduction to Software
- Introduction to Anti-virus and Installation
- Installing of different kind of software for

Peripherals

- Troubleshooting software
- Troubleshooting OS

NETWORKING

- Introduction to Network Topologies
- OSI and TCP/IP Model
- Fabrication of Ethernet Wire
- IP classes and IP distribution
- Network Protocols
- Installation of Network tools (Switch, Hubs, Routers)
- Configuring Network tools
- Troubleshooting Network Tools
- Software for Planning network
- Connecting PC with Wired and Wireless Services
- Security and Sharing

- Network Diagnostics, Testing, and Maintenance

DATA BACK UP AND RECOVERY

- Introduction to Data Backup and recovery
- Installing software for recovery of data
- Introduction of Hard-drives
- Introduction to Servers
- Troubleshooting PC Problems and Errors
- Using Input-output devices
- Operating different kind of OS
- Repairing: Mouse, Keyboard

Practical

- Connecting different kind of Peripherals to PC Installing and maintaining PC hardware (chips, microprocessor, space drives etc.)
- Repairing PC Hardware
- Repairing and developing PC I/n supply generator
- Repairing PC components
- Cleaning and dusting of PC and Peripherals
- Maintaining CPU and Peripherals
- Troubleshooting Memory
- Repairing Floppy Drive, Disk Drive, Ports etc
- Assembling Computer
- Installing PC software
- Troubleshooting Software
- Upgrading Memory PC Peripherals- Installation & maintenance
- Downloading software
- Upgrading Software
- Using different kind of Anti-virus
- Installing Internet to PC
- Fabricating LAN/ Ethernet Wire
- Installing Routers, Switch, Hubs
- Fabricating Different type of Topologies
- Network Planning Software
- Developing Security
- Learning to back-up data
- Ways to back-up data
- Ways to find lost data from the drives
- Breaking of drives password
- Recovering of data from broken PC
- Rebooting of PC

Installation Engineer- SDH& DWDM (Te/Q6300)

Organizational Context (Knowledge of the company / organization and its processes)

- Risk and impact of not following defined procedures/work instructions
- Escalation matrix for reporting identified incidents, troubles and/or emergencies e.g. system failures, fire and power failures
- Types of documentation in organization and importance of the same

Overview of the Guidelines and protection equipments

- SHE and OHS guidelines and regulations as per company's norms.
- Protection equipment (anti-static bands, anti-static packaging, appropriate insulations) that are required to be used.
- "First aid requirements in case of electrical shocks, cuts, fall from height and other common injuries"

Hazards involving in handling the equipment

- Electrical and chemical related hazards and precautionary measures
- Usage of safety guidelines

Management skills for the reports to be made

- "Records to be maintained and implication of non-maintenance of the same."
- Knowledge of spare management and repair and return process of faulty equipments

Technical Knowledge

- Basic equipment category
- Transmission media – Optical, Electrical

Earthing of equipments

- Need and requirement of earthing the equipment

- Mechanism to maintain the earthing pit to absolute zero need and process of earthing of equipment.
- Usage of cable connectors, cable ties and cable tray

Final Installation checklist

- Site installation checklist and critical punch points.

PDH & SDH

- Obtain equipment dimension from installation guide
- PDH and SDH technology
- Limitations of PDH.
- Advantages of SDH.
- Mapping and Multiplexing technology of SDH
- How the DWDM technology works

DWDM

- Applications of DWDM
- Key components of DWDM systems

Architecture of DWDM & Deployment of DWDM

- Architecture of a DWDM network
- Key considerations related to the deployment of DWDM.
- Optical Add-Drop Multiplexers.

Optical devices to be handled

- Optical Cross-Connects.
- Basic equipment design and application

OFC Systems

- Optical fiber transmission
- Login cables (RJ45, RS232 and Hi – Speed USB) for different site equipment.

Equipments handling

- "Functionality of test equipment, line tester, Ethernet tester, VSWR meter, RF power meter, Optical meter etc"

DWDM Equipments handling

- "DWDM amplifiers, MDU units, RODAM features and configurations."

- "Prioritize and execute tasks in a high-pressure environment."

Core Skills/ Generic Skills

- Writing Skills

Writing skills for formal emails and other letters and requests

- "Write email/letter to appropriate authority to access infrastructure (i.e. root etc) that might be needed for the installation."
- "Draft Acceptance testing plan."
- Write acceptance testing

Writing skills for formal emails for the FAULT MANAGEMENT TEAM

- report as per the specified report format
- Write commissioning report as per the specified report format.
- "Write installation report indicating relevant details of site, equipment and accessories"
- Reading Skills

INSTALLATION CHECKLIST

- "Read and interpret bill of material to check if all necessary parts are available for installation."
- Interpret technical plans and drawings for the installation.
- "Read and interpret test plan to execute."

Understanding the various documents

- Read and interpret alarms
- Oral Communication Skills
- "Liaise and coordinate with third party vendors."
- "
- "Communicate with supervisor."
- "
- "Explain complex design and concepts in non-technical language."
- Communicate in local language

Professional Skills

- Plan and Organize

Time & Working pressure management

- "Multitask by handling multiple tasks and completing them successfully with due timeline."
- "Use and maintain resources efficiently and effectively."

Positive attitude

- "Be flexible and accept changes in job requirements, schedules or work environments."
- Customer Centricity
- "Communicate with the customer professionally yet providing them relevant information on progress of installation."

Troubleshooting with the System

- "Identify possible reason of the problem that may arise during AT."
- solve error message/report that might arise during provisioning
- Ask for any help or assistance if needed.
- Problem Solving
- "Troubleshoot common equipment and network related problems."

Escalation methods for alarms ad faults

- "Utilize appropriate tools and commands to rectify faults."
- "Utilize appropriate communication channels to escalate unresolved problems to relevant personnel."
- Analytical Thinking
- "Think through to address complex problems that might arise during Acceptance Testing (AT)."

AT & Commissioning time faults

- "Source technical information by researching enterprise website or manufacturer's technical documentation."
- "Think through to address complex problems that might arise during commissioning"

- Equipment operating skills

Practical for the equipment handling

- "Operate active SDH and DWDM equipment installed at sites."

Software handling

- "Operate equipment specific software like Network Element System (NES)."

Use of the cables and tools

- "Connect appropriate login cables (RJ45, RS232, High Speed USB) to logon to the core nodes."
- "Use appropriate cables (Optical, Electrical) and connectors for effective cabling."
- Technical interpretation skills

Checking of test results for the system deployed

- "Interpret SDH, PDH test sets test results to localize faults and undertake appropriate steps."
- Analyze service impact of the faults to prioritize actions on alarms
- Decision Making

Final testing

- "Decide if acceptance testing needs to be halted under critical circumstances and report to relevant authority."
- "Decide if the proposed plan needs changes to make it relevant for the equipment under AT and communicate with the appropriate team"



Drive test engineer (TEL/Q6211)

- Risk and impact of not following defined procedures/ work instructions
- records to be maintained and implications of non-maintenance of the same
- importance of record keeping
- knowledge of spare management and repair & return process for faulty equipment
- SHE and OHS guidelines and regulations as per company's norms
- first aid requirements in case of electrical shocks, cuts, fall from height and other common injuries
- use of safety kit for climbing towers while optimizing the site
- use of fire extinguisher in the car should be mandatory
- data analysis and corrective action policy and procedures
- record keeping policy
- work safety policy
- legislative requirements and organizations procedures for health, safety and security and role and responsibilities in relation to this
- what is meant by hazard, including the different types of health and safety hazards that can be found in the workplace
- how and when to report hazards
- limits of yours responsibility for dealing with hazards
- your organization's emergency procedures for different emergency situations and the importance of following them the importance of maintaining high standards of health, safety and security implications that any non – compliance with health, safety and security may have on individuals and the organization
- functionality of tools like GPS, Magnetic compass, laptop, MapInfo software, MCOM software, PowerPoint software, Google earth principle of directional antennas, sectorization, tilting (E/M), frequency bands, GSM architecture
- types of telecom towers (GBT, RTT, Pole)
- knowledge of AMT (Amplifier Mount Transceiver)

- Knowledge of passive infrastructure on site. (DG, PIU, SMPS, Tower, Cables , shelter etc.
- troubleshooting technique for laptop, GPS, Mobile phone, software, dongle
- Basic fundamentals of GSM, UMTS, LTE network elements.
- functionality and operations of BTS
- Types of antennas and its radiation pattern
- Basic concepts of handovers, frequency reuse, scrambling codes, PCI, GSM channels, UMTS & LTE channels, interference , types of interferences, Signal strength, power, units conversion
- Call drop reasons, handover failure reasons, poor coverage problem, swapping
- Effect of various parameters on antenna coverage
- Types and reasons for faults and corrective measures
- Technical documentation
- Effect of antenna tilt, direction, azimuth and height on performance (BTS, NodeB, eNodeB)
- Site performance parameters and their optimal values
- Effect of obstructions on tower site performance
- Corrective and mitigating actions to improve site performance
- Operation and troubleshooting of site equipment (GPS, Handset, car charger, dongle, mouse GPS, Data Card)
- Different types of breaches in health, safety and security and how and when to report these
- Evacuation procedures for works and visitors
- How to summon medical assistance and the emergency services, where necessary
- How to use the health, safety and accident reporting procedures and the importance of these
- Government agencies in the area of safety, health and security and their norms and services
- Writing Skills
- fill up appropriate technical forms, maintain proper records as per given format
- Complete accurate well written work with attention to detail
- Reading Skills
- Read and understand manuals, work orders, health and safety instructions, reports etc.
- Interpret reports and numerical data
- Read instructions, guidelines, procedures, rules and service level agreements
- Oral Communication (Listening and speaking skills)
- Communicate with supervisor and peers
- Listen effectively and orally communicate information accurately
- Decision Making
- Evaluate the site and take necessary action, prioritize and execute tasks in a high pressure environment
- Multi task and completing task successfully within due timelines
- Use and maintain resources efficiently and effectively
- Make decisions on suitable course location
- Plan and Organize
- Handle site equipment like laptop, magnetic mouse GPS, mobile phones charger etc.
- Interpret numerical data and other results from DT Software
- Plan and organize your work to meet health, safety and security requirements
- Problem Solving
- Effectively resolve disputes and manage disagreements
- Analyse data and undertake basic calculations on measured parameters
- Apply problem solving approaches in different situations
- Analytical Thinking
- Take initiatives and progressively assume increased responsibilities
- Create and maintain effective working relationships with rigger and team
- Analyse data and activities
- Critical Thinking
- Apply balanced judgments to different situations
- Apply, analyze and evaluate the information gathered from observation, experience , reasoning or communication, as guide to thought and action

Embedded System Design using 8-Bit Microcontroller (TL/M/L5/C037N)

The user/individual on the job needs to know and understand:

- Importance of achieving quality policy and quality objectives as per norms of organization
- System design and standards as per company
- OHS guidelines and regulations as per company's norms
- Importance of keeping mandatory records as per company's format
- Defined procedures/work instructions
- The person on the job needs to know and understand:
 - How to use multi-meter
 - Manufacturing processes and construction methods
 - Dealing with various hardware components
 - Memory/resource constraints
 - Analog, digital and power based circuits and microcontroller interface circuits
 - How to use hardware development tool
 - Dealing with new hardware which can be buggy
 - How to use soldering iron and other soldering equipments
 - Technical manuals
 - Working of software
 - Errors and warnings generated by software to generate the appropriate code
 - Embedded C/C++ programming
 - How to use software de-bugging and unit testing tools
 - Dealing with new hardware which can be buggy
 - How to use hardware de-bugging tools
 - Working of the components used on PCB
 - Power rating for different components
 - Importance of reactive computation
 - Basics of embedded system
 - Programming in C/C++
- **Writing Skills**
 - The person In this job must know and understand how to:
 - Complete workplace documentation accurately
 - Write simple reports when required
- Translate technical requirement test plans
- Record the entire process in proper format
- Fill up appropriate technical forms, activity logs in required format of the organisation
- Maintain proper records as per given format
- **Reading Skills**
 - The person in this job must know and understand how to:
 - Read and interpret organizational policies and procedures
 - Read and interpret data sheets and schematics
 - Read and interpret workplace documentation
 - Read and comprehend data and images
 - Read and understand equipment specifications, parameters, health and safety instructions, technical manuals and reports etc
- **Oral Communication**
 - (Listening and Speaking skills) The person in this job must know and understand how to:
 - Interact with the each other
 - Work as a team player as well as individual contributor basis
 - Communicate with supervisor and peers
 - Follow instructions accurately
 - Use questioning to minimize misunderstandings
 - Display courteous and helpful behaviour at all times
 - Appreciate business demands
 - Interact with engineers if required
 - Work as a team player as well as on individual basis
- **Decision Making**
 - The person in this job must know and understand how to:
 - Prioritize and execute tasks in a high-pressure environment
 - Handle multiple tasks and completing them successfully within due timelines
 - Use and maintain resources efficiently and effectively
 - Be flexible and accept changes in job requirements, schedules, or work environments
 - Use multi-meter
 - Handle embedded components to be laid out on PCB
 - Use hardware development tools

- Make decisions on suitable course of action
- Use debugging and testing tools
- Manage breakdowns in communications with other teams
- Interpret schematics and data sheets of components
- Check if connections of wires are made correctly
- Handle security breaches
- Handle ambiguity in directions and instructions
- **Plan and Organize**
- The person in this job must know and understand how to:
- Plan and organize service feedback files/documents
- Plan and organize your work to meet health, safety and security requirements
- Organize and manage the planning process for testing and troubleshooting.
- **Analytical Thinking**
- Identify emergency situations
- Apply balanced judgment to different situations
- Identify cause effect relationship for the emergencies
- Analyze data and activities
- **Critical Thinking**
- The person in this job must know and understand how to:
- Analyze, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently
- Assess and control the quality standards
- Apply balanced judgments to different situations
- **Problem Solving**
- The person In this job must know and understand how to :
- Utilize appropriate tools to rectify faults
- Utilize appropriate communication channels to escalate unresolved problems to relevant personnel
- Apply problem solving approaches in different situations



Installation and Maintenance of Photocopiers and Printers (TL/S/L2/C051 N)

- company's quality policies/ vision on: Customer Handling, TAT (Turnaround Time), Commitment
- organization structure and process of other departments of importance
- Importance of the individual's role in the organization
- reporting structure
- profiling of customers
- installation and activation policy
- service model of the company
- company's code of conduct
- organisation culture and typical customer profile
- company's documentation policy
- company's policies on: incentives, delivery standards, and personnel management
- Knowledge of Electronic and Electrical Components
- Resistors, Capacitors and Inductors, their identification, types and application
- Protection equipment (anti-static wrist bands, shoes, dress, packaging, and other appropriate insulations) that are required to be used
- First aid requirements in case of electrical shocks, cuts and other common injuries
- Soldering and De-Soldering Techniques
- Principle of Operation of Photocopier
- Dismantling and assembling of paper feed mechanism, paper tray, Thermal unit and Toner Unit.
- Identify the various sensors used in the copier and their fixtures.
- Paper trays, Paper feed mechanism and the sensors used for paper movement
- Periodic cleaning and servicing of copier machines
- Printers and their types
- Thermal Printers and Inkjet Printer, their Working Principle
- Laser Printers and its operation
- Different Parts of Printer
- Cartridges, toner, drum, their use and its replacement
- Overall fault finding and repair of Printer

- Standard fault-finding (troubleshooting) techniques
- Component testing methods
- Troubleshooting through circuit diagram
- Removal and Replacement of faulty Component
- **Reading Skills**
- Read and understand technical manuals, work orders and reports
- Read and understand organizational health and safety instructions
- **Writing Skills**
- Fill up record sheets clearly, concisely and accurately as per company procedures
- **Communication Skills**
- Clearly communicate relevant information to supervisors
- Respond appropriately to queries
- Communicate with customer/customer facing teams to understand handset performance issues
- Communicate in the local language
- Convey proposed solution to the customers
- **Time Management Skills**
- Prioritize and execute tasks in a high-pressure environment
- Use and maintain resources efficiently and effectively
- **Analytical Skills**
- Analyse (and understand) customer complaints
- Interpret reports, readings and numerical data
- Keep up to date with new technology and performance issues
- **Other Skills**
- Create and maintain effective working relationships and team environment through collaboration
- Take initiatives and progressively assume increased responsibilities
- Share knowledge with other team members and colleagues
- Documentation skills
- how to document completion note for customer
- how to record completion information in the ERP system
- Team Work and Multitasking
- to deliver product to next work process on time
- Electrical and Electronic Component Identification and Use Skills
- Understanding use of Electrical component such as cable, switched, transformers etc.
- Understand use of Electronics Component such as Diodes, Transistors, ICs etc.
- Use of Test and Measurement Equipment
- Soldering skills
- Understanding soldering Requirements
- Operation of Equipment required for Soldering
- Use of De-soldering Pump
- **Photocopier Repairing Skill**
- Understand Operation of Photocopier
- Dismantling and assembling of paper feed mechanism, paper tray, Thermal unit and Toner Unit.
- Identify the various sensors used in the copier and their fixtures.
- Fault finding and repairing in electrostatic high voltage unit.
- Dismantling and fitting of drum unit- cleaning of drum unit
- Dismantling and refitting of Carriage unit , mirror unit and light unit
- Periodic cleaning and servicing of copier machines
- Overall fault finding and repair a photo copier machine.
- **Printer Repairing Skill**
- Understand Working Principle of Thermal Printers and Inkjet Printer
- Understand Operation of Laser Printers
- Different Parts of Printer and their use
- Cartridges, toner, drum, their use and its replacement
- Overall fault finding and repair of Printers
- **Troubleshooting Skills**
- How to approach a defect
- Make use of standard OEM specified troubleshooting steps
- Interpret intermediate results and progress fault rectification accordingly
- Utilize appropriate tools to rectify faults



Optical Fiber Technician (TEL/Q6401)

To be competent, the user/individual on the job must be able to:

- obtain OFC route plan from the planning team or the supervisors as per which OFC has to be laid
- verify the proposed route to ensure that bend ratios meet manufacturer's specifications and industry standards
- ensure that site is made safe and secure for cable installation in coordination with labour workers
- develop installation work plan and identify dependencies if any
- determine the statutory permissions required and the relevant authorities involved
- liaise with authorities and obtain relevant clearances
- ensure availability of test equipments like OTDR and Power meter for carrying out optical tests
- ensure availability of all required trenching, cable laying, pipe laying, OFC laying and splicing equipments and spares for timely completion of installation activity
- ensure that faulty equipments are sent to logistics team for repair and replacement
- ensure cable drum is placed near site location and test cable on drum for optical continuity
- ensure trenching is carried out by labour workers as per the route plan requirements and site terrain
- ensure minimum radius is maintained, where bends are necessary
- ensure use of specially designed dispensers to place the ducts in the trench as straight as possible
- ensure pipe/ ducts are placed at lower appropriate depths as per the laying standards after approval from competent personnel
- ensure that ducts are free from twists, collapsed portions and that all such portions are rectified by using appropriate couplers
- ensure proper uncoiling of PLB ducts PC8. ensure duct joints are airtight to ensure smooth cable blowing using cable blowing machines
- ensure cable blowing/ jetting is carried out using rodder as per standard process
- ensure availability of additional cable length (loop) at jointing locations, for future use in case of failures
- ensure that ends of ducts are closed with End Plugs to avoid ingress of mud, water or dust
- ensure that entire length of the duct is cleaned to remove sand, dust that may damage the optical fiber cable
- ensure that cables are appropriately prepared for Jointing based on colour and/ or sequence matching
- ensure the cables are joined/ spliced by Optical fibre splicer as per the standard fusion/ mechanical splicing mechanisms
- ensure use of proper protection material such as GI pipes, RCC pipes, RCC halfcut pipes etc.
- ensure use of Pushfit couplers as duct joints
- identify instances of cross fibre using power source and power meter tests and ensure their elimination
- ensure appropriate optical connectors are used as per the terminating equipment requirements
- verify if ducts require additional protection like cover of RCC pipes, chambering and concreting based on site location and terrain
- ensure installation activity is completed within the defined SLAs
- ensure timely completion of work by monitoring activities performed by the labour workers and optical splicers
- ensure compliance to enterprise policy while escalating instances of delays
- ensure use of appropriate color for the route indicators and joint indicators as per standards
- ensure splices are within the quality assurance/ AT standards
- test the joint for transmission loss and strength and re-terminate the joint if the transmission loss exceeds the manufacturer's specifications
- ensure backfilling and crowning in coordination with the labour workers as per standard requirements
- ensure stone marker at the jointing pit has to be provided for identification of route as well as jointing pit

- ensure appropriate cable markings as per guidelines
- ensure updation of As-build documents based on joint location and installed fibre route
- clear sites from debris and other items
- ensure appropriate disposal of the cut fibers, sleeves and cable pieces
- ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms
- ensure that work is carried out in accordance to the level of competence and legal requirements
- ensure that sites are assessed for health and safety risk as per company's guidelines prior to commencement of work
- ensure compliance to health and safety guidelines by optical splicer and installation labour workers
- ensure that Personal protection equipments like helmets, knee pads, safety boots, safety glasses and trench guards are appropriately used as required
- ensure environmental conditions and hazards like Earth Potential Rise (EPR) are considered while carrying out the work
- ensure adherence to emergency plans in case of safety incidents
- ensure escalation of safety incidents to relevant authorities as per guidelines legal requirements
- ensure cable id/ make and drum numbers are recorded for future fault localization
- ensure OTDR finding are documented & summary of tests are shared with appropriate teams
- obtain sign-off from the projects team and communicate status to NOC for cable integration ensure that documents are available to all appropriate authorities to inspect
- risk and impact of not following defined procedures/work instructions
- escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures ,fire and power failures
- clearances/ municipal approvals that are required prior to carrying out the installation work
- types of documentation in organization and importance of the same
- records to be maintained and implications of non-maintenance of the same
- knowledge of spare management and repair & return process for faulty equipments
- SHE and OHS guidelines and regulations as per company's norms
- personal protection equipments like helmets, knee pads, safety boots, safety glasses and trench guards that are required to be used
- first aid requirements in case of electrical shocks, cuts, fall and other common injuries
- electrical and chemical, environmental related hazards and precautionary measures
- usage of fire safety equipments
- principles of optical transport media and OFC communication
- knowledge of Optical fiber characteristics like refraction, polarization, attenuation, dispersion
- bands in optical fibre and their usability, loss characteristics
- signal strength and quality KPIs – design values and margins
- functionality of optical equipments like cleaver, mechanical and fusion splicing kit, protection sleeves, fiber stripper, fiber reinforced plaster during splicing and jointing
- functionality of optical test equipments like OTDR and power meter
- optimal values of OTDR, Power meter and light meter test results
- utility of As-build route diagrams
- standard trenching, cable laying, pit preparation, splicing, jointing, blowing and back-filling process for installation of OFC cables
- different types of OFC connectors based on the type of equipments
- **Basic Reading & Writing Skills**
- fill up appropriate technical forms, activity logs in required format of the company
- maintain proper records as per given format
- read and understand manuals, work orders, health and safety instructions, memos, reports etc.
- **Communication Skills**
- liaise and coordinate with third party vendors
- communicate with supervisor and peers
- communicate in the local language
- **Project Management Skills**

- prioritize and execute tasks in a high-pressure environment and handle high pressure situations
- handle multiple tasks and completing them successfully within due timelines
- use and maintain resources efficiently and effectively
- be flexible and accept changes in job requirements, schedules, or work environments
- **Other Skills**
- interpret test reports, as made route diagrams and other numerical data
- create and maintain effective working relationships and team environment
- take initiatives and progressively assume increased responsibilities
- share knowledge with other team members and colleagues
- **Equipment operating Skills**
- utilize appropriate optical equipments like cleaver, mechanical and fusion splicing kit, protection sleeves, fiber stripper, fiber reinforced plaster during splicing and jointing
- operate optical test equipments like OTDR and power meter
- **OFC splicing and splice testing skills**
- undertake GPS based route survey to capture appropriate site details
- utilize appropriate fiber like single mode and multi mode optical fibre based on specific requirements
- lay duct using specially designed dispensers
- carry out splicing in a manner ensuring minimum reflectance loss, optical return loss, insertion loss perform optical link testing as per standard process
- utilize appropriate optical test equipments like OTDR, power meter based on test requirements
- perform OFC tests for quality check or Acceptance testing
- prepare test reports in the specified formats
- rectify deviations in the test reports by reperforming the splicing/ testing operations
- perform OTDR test as per standard process and summarize OTDR reports for records and review
- perform Power meter tests as per standard
- process and identify instances of cross-fibres appropriately mark/ tag cables to identify direction and route
- utilize suitable OFC connectors are used based on the termination equipment
- **Technical interpretation Skills**
- identify appropriate cables for splicing based on sequence or colour coding to avoid occurrence of instances of cross fibers
- interpret As made documents and perform update based on actual cable routes, joints
- interpret OTDR and power meter test results to identify and localize faults and/ or measure optical losses
- interpret optical link testing results to ensure link margins
- **Problem solving Skills**
- utilize appropriate tools to rectify faults
- utilize appropriate communication channels to escalate unresolved problems to relevant personnel



Optical Fiber Splicer (TEL/Q6400)

To be competent, the user/individual on the job must be able to

- verify that cable is installed as per the installation plan and visually inspect cable for signs of sheath damage
- ensure minimum bend ratios are maintained according to manufacturer's specifications to prevent cable damage and signal degradation
- ensure cable is placed on stable jointing pit
- secure cable according to safe industry practice to avoid cable and sheath damage
- identify the appropriate fibers to be joined based on color coding, and sequence
- identify appropriate place for the joint chamber location
- clean the fibre appropriately as per company/manufacturer's
- ensure availability of test equipments like OTDR and Power meter for carrying out optical tests
- ensure availability of optical equipments like spool, joint closure, connectors, splicer and cleaver ensure that faulty equipments are sent to logistics team for repair and replacement
- ensure availability of OF joint kits, Pigtails, patchcords, FDF, 0dB connector, protection sleeves, heat shrinks
- ensure continuous power supply at site for the splicing operation by use of portable generators or standby heavy duty batteries
- ensure availability of RCC joint chambers with covers as per specifications
- ensure availability of sand for filling the chambers
- ensure availability of one spare cable drum for emergency replacement of laid cables
- ensure calibration status of equipments to be used (eg.splicing machine, OTDR, power meter, cleaver)
- ensure clean environment for splicing operations
- ensure cables are stripped off their protective coating, at areas where splicing has to be performed as per the standard process
- ensure the fiber ends are cleaved with a precision cleaver and are inspected with magnifier to ensure appropriateness
- in case of fusion splicing - Insert fibers strand to the fusion machine in accordance to product/equipment specifications
- in case of mechanical splice, align the fibers together by a precision made sleeve and place the prepared fiber in mechanical splicing kit
- verify the spliced fiber for appropriate splicing in the magnifier window
- ensure appropriate splice protectors like heat shrink splice protectors are utilized to protect the splice
- test the fiber joint with OTDR to confirm conformance to design requirements
- ensure optical losses - reflectance, return and insertion are within the defined specifications/ limits
- ensure sealing of Joint closure through heat shrinking/ multi diameter seals/ mechanical seals as appropriate
- ensure FRP - Fiber reinforced plastic is used to strengthen the joint as required
- test the fiber at both ends for instances of cross fiber using power source and power meter tests and ensure their elimination
- ensure joint is placed in the chamber properly
- ensure spare cable (loop) is coiled appropriately and placed inside the joint
- ensure that sand is filled in the chamber to the brim and the chamber covers are placed properly
- ensure that Joint indicator is planted 1 meter behind the chamber location (away from road)
- ensure that the indicator is painted proper colour (for example yellow for joint)
- ensure appropriate disposal of the cut fibers, sleeves and cable pieces
- ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms
- ensure that work is carried out in accordance to the level of competence and legal requirements
- ensure that sites are assessed for health and safety risk as per company's guidelines prior to commencement of work

- ensure compliance to health and safety guidelines by optical splicer and installation labor workers
- ensure that Personal protection equipments like helmets, knee pads, safety boots, safety glasses and trench guards are appropriately used as required
- ensure environmental conditions and hazards like Earth Potential Rise (EPR) are considered while carrying out the work
- ensure escalation of safety incidents to relevant authorities as per guidelines
- ensure appropriate cable marking and Installation of chamber & route marker for direction and route identification
- ensure preparation of jointing record for future reference
- ensure that documents that are required to be updated are identified
- ensure completion of OTDR register showing complete record of jointing tests
- ensure that documents are available to all appropriate authorities to inspect
- risk and impact of not following defined procedures/work instructions
- escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures ,fire and power failures
- types of documentation in organization and importance of the same
- records to be maintained and implications of non-maintenance of the same
- knowledge of spare management and repair & return process for faulty equipments
- SHE and OHS guidelines and regulations as per company's norms
- personal protection equipments like helmets, knee pads, safety boots, safety glasses and trench guards that are required to be used
- first aid requirements in case of electrical shocks, cuts, fall and other common injuries
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- functionality of optical equipments like cleaver, mechanical and fusion splicing kit, protection sleeves, fiber stripper, fiber reinforced plaster during splicing and jointing
- functionality of optical test equipments like OTDR and power meter
- optimal values of OTDR, Power meter and light meter test results
- utility of As made route diagrams
- standard trenching, cable laying, pit preparation, splicing, jointing, blowing and back-filling process for installation of OFC cables
- different types of OFC connectors based on the type of equipments
- standard process and need for performing duct integrity tests like air tightness tests and kink free tests
- right cleaning solvent and other materials(tissue paper etc) to clean the fibre
- **Basic Reading & Writing Skills**
- fill up appropriate technical forms, activity logs in required format of the company
- maintain proper records as per given format
- read and understand manuals, work orders, health and safety instructions, memos, reports etc.
- construct simple sentences and express ideas clearly through written communication
- **Communication Skills**
- liaise and coordinate with third party vendors
- communicate with supervisor and peers
- communicate in the local language
- **Other Skills**
- interpret test reports, as made route diagrams and other numerical data
- create and maintain effective working relationships and team environment
- maintain security of site records and other confidential data
- work in teams and take initiatives
- execute tasks in a high-pressure environment
- be flexible and accept changes in job requirements, schedules, or work environments
- **Equipment operating Skills**
- operate fusion splicing machine: manual, automatic or handheld

- utilize appropriate optical splicing equipments like cleaver, mechanical and fusion splicing machine, protection sleeves, fiber stripper, fiber reinforced plaster, joint closure, heat shrink splice protectors
- operate splice sleeve heaters (within the machine and external to the splicing machine)
- operate optical test equipments like OTDR and power meter
- utilize fiber spool where appropriate while carrying out OTDR tests
- splice in both indoor and outdoor environment
- utilize appropriate fiber like single mode and multi mode optical fibre based on specific requirements
- lay duct using specially designed dispensers
- carry out both fusion and mechanical splicing in a manner ensuring minimum reflectance loss, optical return loss, insertion loss
- utilize appropriate optical test equipments like OTDR, power meter based on test requirements
- perform OTDR test as per standard process and summarize OTDR reports for records and review
- perform Power meter tests as per standard process and identify instances of cross-fibres
- appropriately mark/ tag cables to identify direction and route
- install and operate Installation Termination joint boxes (TJBs)
- install and operate the Fiber Distribution Frames (FDFs) with different types of OdB connectors
- organized laying of Pigtails and patch cords and terminating them in TJB/ FDF etc.
- Technical interpretation Skills
- identify appropriate cables for splicing based on sequence or color coding
- interpret As made documents and perform update based on actual cable routes, joints
- interpret OTDR and power meter test results to identify and localize faults and/ or measure optical losses

CCE Call Centre (TEL/Q0100)

To be competent, the user/individual on the job must be able to:

- attain minimum call login time/dials/customer contacts and attendance for the number of days specified
- balance total number of minutes spent talking to the customer, within specified limits
- restrict total number of minutes customer is put on hold, within given time limits
- attain total number of minutes spent wrapping up calls/notations/tagging within given time limits
- achieve minimum typing speed and accuracy as specified for the job role
- role and importance of the helpdesk in supporting business operations
- the concept of ACHT and AHT, its significance in the overall profitability of the business and how the job relates to the ACHT and AHT
- significance of the intranet tools and telephony application available, in order to attend a customer's call
- importance of attendance in time at office /minimum call login hours/typical response time/service time of processes, products and services
- the importance of clear and honest communication so that the customer is clear about what is being committed
- the importance of respect for self, respect for others and the environment
- difference between 'desirable' and 'undesirable' communication
- company procedures set for execution of the job role/handling company property/maintaining confidentiality of the customer data
- violation of the code of ethics and corrective measures thereof
- out bound calls to customers must not be initiated during unreasonable hours i.e. before 8:00am or after 9:00pm (local time at called party's location)
- the workplace ergonomics for performing the daily tasks
- need for adequate rest breaks or pauses during working hours
- basic working of a computer

- how to receive and make calls, including answering the call within specified number of rings, call forward, call hold and call transfer
- the basic functionalities of the relevant applications used to search customer details in the database, within the specified time limits
- all relevant applications, to be able to swap quickly amongst applications for quick call wrap up
- **Reading Skills**
- read and comprehend about organization's new products and services through intranet portal
- keep abreast with the latest information on products and services, by reading brochures, pamphlets and daily briefing sheets, to reduce the ACHT
- **Writing Skills**
- record complete and correct customer discussions in the call logs in CRM, within the ACHT
- formulate sentences without any grammatical errors
- record precise and clear information for analysis by other departments
- **Comprehension Skills**
- Mention remarks in CRM on customer Q R C within the ACHT
- identify with the problem narrated by the customer, interpret and communicate the same for apt resolution, within the ACHT Oral Communication (Listening and Speaking skills)
- fluently speak and understand English and the regional language
- gauge the customer's communication style and respond appropriately
- probe customers using appropriate open and close ended questions to understand the nature of problem, without any pre-conclusions
- give clear instructions to customers
- avoid using jargons, slang, technical terms and acronyms when communicating with customers
- **Decision Making**
- make decisions to categorize customer's interaction Customer Centricity The user/individual on the job needs to know and understand
- how to manage relationship with irate customers
- how to display courtesy and professionalism while interacting with the customers
- how to be patient and attentively listen to the customer
- how to build rapport with the customer to secure pleasant and positive experience
- **Problem Solving**
- identify immediate and/or temporary solutions to be given to the customers
- comprehend the problem, identify the solution(s) and suggest the best possible solution to the customer educate customer resolve their technical issues
- **Objection Handling** The user/individual on the job needs to know and understand how to cope with criticism of customers and constructively mould the same into a positive impression about the organization
- empathize with customer's problems, criticism and suggestions
- address customer's problems before following your given script
- address customer's complete concerns before ending the call
- **Selling Skills**
- maintain self-confidence while conversing with the customers
- effectively influence customers for choosing the right product
- create awareness about product/process/VAS/Data in the customers
- assess customer's needs and expectations and address them accordingly



CCE Relationship centre (TEL/Q0101)

To be competent, the user/individual on the job must be able to:

- adhere to specified uniform/dress code and grooming guidelines
- wear name badges as per organizational guidelines
- organize inventory, stationery, pantry stock and display products at the store/showroom/outlet
- maintain basic hygiene and infrastructure upkeep in the store
- attend daily morning briefing before store opening
- review previous day's performance during morning meeting
- obtain product/process changes, new schemes/offers and target & task distribution from store manager
- maintain transparency with customer in sharing resolution timelines
- importance of the role in representing the organization
- organizational guidelines w.r.t. standard uniform, name badges and resolution timelines
- process of store management, organizing inventory, stationery, pantry stock and product displayed importance of attending morning brief, to obtain product/process changes, new schemes/offers and target & task distribution from store manager
- **Reading Skills**
- keep abreast with the latest knowledge by reading brochures, pamphlets and daily briefing sheets Comprehension Skills
- comprehend sales targets
- **Oral Communication (Listening and Speaking skills)**
- fluently speak and understand English and the regional language
- gauge customer's communication style and respond appropriately
- clearly communicate with peers/seniors during morning brief
- **Interpersonal Skills**
- present a pleasant personality and enjoy communicating with people

- effectively translate and convey information
- accurately interpret other's emotions and respond empathetically
- be sensitive to other's feelings and calmly resolve conflicts
- switch over to customer's language to create comfort
- identify customer's level of frustration with the language adopted by him
- **Report Building**
- manage irate or abusive customers
- display courtesy and professionalism
- be patient and attentively listen
- build rapport with peers to secure understanding and co-operation at work place
- **Time Management**
- manage time while performing multiple responsibilities at the store

