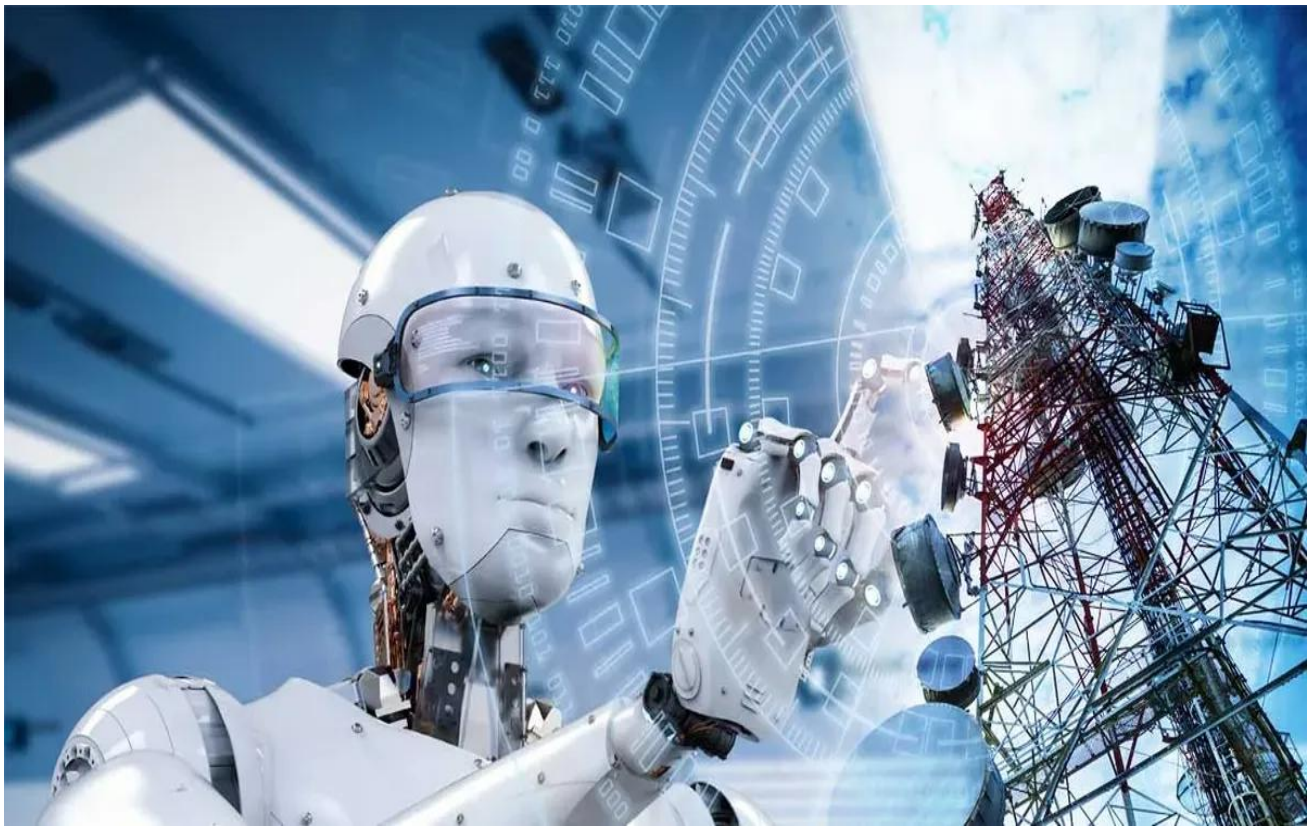

AI & ML – Jr. Telecom Data Analyst

QP Code: TEL/Q6602

Version: 3.0

NSQF Level: 4

Model Curriculum Version: 3.0

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

Table of Contents

Training Parameters

Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Data Handling - Network Managed Services
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2523.6602
Minimum Educational Qualification and Experience	12th grade pass with no experience required Or Completed 2nd year of 3-year diploma** (after 10th) with no experience required Or 11th Grade Pass with 1 year relevant experience* Or Previous relevant Qualification of NSQF Level 3.5 with 1.5 years of relevant experience* Or Previous relevant Qualification of NSQF Level 3 with 3 years of relevant experience* **Relevant experience in basic data handling, data annotation or labeling data validation, formatting, cleaning, or pattern identification), basic programming exposure (e.g., Python, SQL), experience working with telecom reports, customer logs, or usage data in support or MIS roles.* ***Diploma in Computer Science, IT, Electronics and Communication, Data Science/AI & ML, Applied Statistics or Mathematics.*
Pre-Requisite License or Training	Basic knowledge of Python and Data Structures
Minimum Job Entry Age	
Last Reviewed On	19-Aug-2025
Next Review Date	30-June-2028
NSQC Approval Date	19-Aug-2025
QP Version	3.0

Model Curriculum Creation Date	19-Aug-2025
Model Curriculum Valid Up to Date	30-June-2028
Model Curriculum Version	3.0
Minimum Duration of the Course	450 hours
Maximum Duration of the Course	450 hours

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:

- Apply AI-based tools and techniques to gather, clean, and structure telecom data from various sources, such as CDRs, OSS/BSS logs, and IoT feeds in appropriate formats for analysis.
- Interpret structured datasets by applying classification, regression, and clustering techniques using tools such as Scikit-learn, Pandas, and data visualisation libraries or dashboards.
- Assist in containerising, configuring, and deploying AI models into telecom systems and monitor inference results, anomalies, and system metrics using standardised tools and dashboards.
- Document model updates, performance evaluations, logs, and version histories using Git/DVC and contribute to ensuring audit readiness and operational traceability in model deployments.

Compulsory Modules

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

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
TEL/N6607: Collect Data Using AI Tools NOS Version- 3.0 NSQF Level- 4	**30:00**	**40:00**	**50:00**	**-**	**120:00**
Module 1: Introduction to the role of AI & ML – Jr. Telecom Data Analyst	10:00	-	-	-	10:00
Module 2: Collect Data Using AI Tools	20:00	40:00	50:00	-	110:00
TEL/N6608: Analyse Data Using AI Tools and Utilise Data in Business Productivity NOS Version- 3.0 NSQF Level- 4	**30:00**	**40:00**	**50:00**	**-**	**120:00**
Module 3: Analyse Data Using AI Tools and Utilise Data in Business	30:00	40:00	50:00	-	120:00

Productivity					
TEL/N6609: Support Implementation of AI Solutions in Telecom Operations NOS Version- 3.0 NSQF Level- 4	**40:00**	**50:00**	**30:00**	**-**	**120:00**
Module 4: Support Implementation of AI Solutions in Telecom Operations	40:00	50:00	30:00	-	120:00
TEL/N9101: Organise Work and Resources as per Health and Safety Standards NOS Version- 3.0 NSQF Level- 4	**10:00**	**10:00**	**10:00**	**-**	**30:00**
Module 5: Organise Work and Resources as per Health and Safety Standard	10:00	10:00	10:00	-	30:00
TEL/N9102: Interact Effectively with Team Members and Customers NOS Version- 3.0 NSQF Level- 4	**10:00**	**10:00**	**10:00**	**-**	**30:00**
Module 6: Interact Effectively with Team Members and Customers	10:00	10:00	10:00	-	30:00
DGT/VSQ/N0101: Employability Skills (30 Hours) NOS Version No. 1 NSQF Level- 4	**30:00**	**-**	**-**	**-**	**30:00**
Module 7: Employability Skills (30 hours)	30:00	-	-	-	30:00
Total Duration	**150:00**	**150:00**	**150:00**	**-**	**450:00**

Module Details

Module 1: Introduction to the Role of AI & ML – Jr. Telecom Data Analyst

TEL/N6607, v3.0

Terminal Outcomes:

- Outline the spread of the telecom sector in India.
- Discuss the job role of an AI & ML – Jr. Telecom Data Analyst.
- Explain the scope of work for the AI & ML – Jr. Telecom Data Analyst.

Duration: 10:00	**Duration: 00:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size, structure, and sub-sectors of the telecom industry, including mobile, broadband, IoT, and enterprise communication services. • Explain the basic concepts of AI & ML and their relevance in telecom, including common applications like churn prediction and network fault detection. • Describe the job role, key responsibilities, and required skills of an AI & ML Jr. Telecom Data Analyst within telecom operations. • Identify employment opportunities and potential career paths available in the telecom data analytics sector. • Describe the telecom data workflow and lifecycle, and explain how data analysts contribute to data-driven decision-making. • List and explain the daily, weekly, and monthly tasks and responsibilities an AI & ML- Jr. Telecom Data Analyst typically handles. • Discuss the importance of ethics, data privacy (e.g., GDPR), and compliance with telecom regulations in handling sensitive customer and network data. • Explain organisational expectations related to teamwork, quality standards, communication, and professional conduct in	

a telecom data environment. ● Discuss the organisational policies on workplace ethics, managing sites, quality standards, personnel management and public relations (PR). ● Identify and describe the purpose of basic tools used in telecom data analysis, including Python (intro), Excel, and Tableau.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	
Tools, Equipment and Other Requirements	
NA	

Module 2: Collect Data Using AI Tools

Mapped to NOS: TEL/N6607, v3.0

Terminal Outcomes:

- Interpret telecom-specific business problems to define the scope, data types, and sources required for AI-enabled data collection.
- Demonstrate the use of AI tools and Python libraries to collect, access, and organise telecom data from multiple sources, including APIs and cloud platforms.
- Apply data cleaning, transformation, and normalisation techniques using scripts and AI-based automation tools to prepare data for analysis.
- Illustrate the procedure of validating datasets and ensure data integrity, usability, and compliance with telecom regulatory and ethical standards for machine learning applications.

Duration: 20:00	**Duration: 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the benefits of using AI-based tools to identify business solutions and predictions. • Explain how to define the scope and objectives of telecom data analysis based on business needs and problem statements. • Explain the various types of telecom data (e.g., numerical, textual, and visual), including CDRs, CRM data, and network logs, and how they relate to specific use cases. • Describe how to identify what type of data must be collected in line with the defined scope and AI use case. • Illustrate data types (structured, unstructured) and formats used in telecom environments. • Describe how basic AI/ML tools like Python, Pandas, and NumPy are used to load and access telecom datasets for analysis. • Explain how to organise and convert telecom data into a readable format using tools and methods such as encoding, renaming, and structuring datasets. • Explain the use of AI technology to make enterprise data accessible to various	• Load telecom datasets (e.g., call detail records, usage logs) using tools like Python and Excel. • Show how to write Python scripts to extract relevant data fields from telecom datasets such as CDRs and CRM tables. • Demonstrate how to collect structured and semi-structured data from telecom systems using APIs, databases, CSVs, and real-time feeds, and describe the use of AI technology in these processes. • Use Pandas, Excel, and AI-based tools to clean datasets by identifying and removing missing values, duplicates, corrupt entries, and other data integrity issues. • Identify and remove outliers or anomalies from network performance or usage data using statistical or AI-based methods. • Demonstrate how to preprocess and transform raw data through encoding, formatting, and renaming operations for machine learning readiness. • Use cloud-based storage systems (e.g., Google Drive, AWS, or Azure) to store and manage large telecom datasets. • Apply Natural Language Query (NLQ) tools or AI-enabled interfaces to extract intuitive

stakeholders in an organisation. • Explain the process of identifying and handling missing data, removing duplicates or corrupt entries, and normalising datasets to prepare them for analysis. • Describe the importance of identifying coding errors in scripts and data transformation logic before using the data for modelling or analysis. • Explain how to select relevant features or attributes for building AI models that can answer defined business questions. • Describe the key telecom data file formats (CSV, Excel, JSON) and how to parse or convert them for use in AI pipelines. • Explain the importance of telecom data compliance (e.g., TRAI compliance) and ethical handling of customer data during collection and storage. • Describe how structured datasets are used in training, testing, and deploying AI/ML models.	insights for stakeholders from telecom data. • Demonstrate the use of AI tools such as ML algorithms and Natural Language Generation (NLG) to automate data classification and streamline data management processes. • Assess the quality and usability of datasets using AI-enabled validation tools or scripts. • Create structured, analysis-ready datasets for downstream applications like churn prediction or customer segmentation. • Define the scope, collect, clean, and prepare data for a real-world telecom use case, such as call drops or customer churn analysis (Capstone Mini-Project).
Classroom Aids:	
Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	
Tools, Equipment and Other Requirements	
Python IDE (Jupyter/Google Colab), Python Libraries/Frameworks (Pandas, Scikit-learn, TensorFlow, PyTorch, ONNX), NumPy Library, API Access Keys, Cloud Storage Platforms (Google Drive, AWS, Azure), MS Excel, JSON Files, Telecom Data Samples (CDRs, CRM Logs, QoS logs), Natural Language Query Tool, AI-enabled Data Collection Tools (Talend, RapidMiner, Knime), Data Cleaning Scripts, VS Code.	

Module 3: Analyse Data Using AI Tools and Utilise Data in Business Productivity

Mapped to NOS: TEL/N6608, v3.0

Terminal Outcomes:

- Apply AI and machine learning techniques to classify, cluster, and interpret telecom datasets for deriving actionable business insights.
- Develop Business Intelligence (BI) dashboards, reports, and predictive models using data visualisation and augmented analytics tools to support decision-making.
- Evaluate AI-generated patterns and model outputs using performance metrics and align the findings with operational or strategic business objectives in telecom.

Duration: 30:00	**Duration: 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the difference between supervised and unsupervised machine learning and their relevance to telecom data analysis. • Describe key ML techniques used in telecom, such as decision trees, logistic regression, and clustering, for solving problems like churn and network optimisation. • Explain the application and benefits of predictive analytics in forecasting telecom trends using historical data. • Explain how predictive analytics includes human intervention for pattern validation and assumption testing. • Explain how machine learning helps automate data modelling, test assumptions, and generate business insights. • Describe how augmented analytics and Natural Language Query (NLQ) tools enable non-technical users to interact with data, generate insights, and help analyse data more deeply and independently. • Explain how AI supports accurate interpretation of quantifiable data such as usage patterns, revenue trends, and service quality metrics. • Explain how AI technology is used to assess the quality and relevance of telecom data	• Demonstrate the use of the ETL (Extract, Transform, Load) process using augmented analytics tools to prepare telecom data for analysis. • Demonstrate how to commission and decommission data sets as per the requirement. • Apply AI-based statistical tools to analyse and interpret patterns, trends, and insights in large and complex telecom datasets. • Demonstrate the use of AI-based statistical tools to identify, analyse, and interpret patterns, trends, and actionable insights in complex data. • Demonstrate how to classify telecom data using ML algorithms such as decision trees and logistic regression to build predictive models (e.g., churn prediction). • Cluster telecom customer data using techniques like K-means for segmentation and targeted marketing. • Visualise key telecom metrics (e.g., dropped calls, ARPU) using data visualisation tools like Excel and Tableau. • Create and present interactive dashboards to track telecom KPIs and metrics for operational decision-making. • Use Natural Language Query (NLQ) and Natural Language Generation (NLG) to query

before decision-making. • Describe how data visualisation tools (charts, dashboards, KPIs) are used to represent telecom data in a business-friendly format. • Explain key evaluation metrics such as accuracy, precision, recall, and F1-score used to assess model performance. • Explain the benefits of AI-driven analytics in telecom, such as improved customer service, targeted marketing, and operational efficiency. • Explain how data analytics enables new business opportunities, enhances marketing, improves efficiency, and elevates customer service. • Describe how to create and structure business intelligence reports using storytelling and data insights. • Explain how business intelligence tools support strategic decision-making and help identify areas for improvement. • Describe the process of interpreting AI-generated insights to make critical decisions in telecom operations and service delivery. • Explain the importance of stakeholder collaboration in reviewing analysis outcomes and identifying process improvement areas. • Explain the ethical use of AI and potential risks when applying AI outputs in telecom business decisions. • Describe how AI analytics helps to continuously monitor and improve marketing programs, service delivery, and operational performance.	data and generate reports in machine-readable and intuitive language. • Demonstrate the automatic generation of business reports using augmented analytics, highlighting insights, solutions to business challenges, and predictions for the future. • Conduct trend analysis on local, national, and global data, identifying impacts on telecom operations and the wider industry. • Demonstrate how to analyse past and present data as part of Business Intelligence (BI) to deliver insights faster and help conduct business efficiently. • Create a full-cycle telecom data analysis project, from raw data collection to insight generation and business recommendation. • Role-play to present the strategic recommendations derived from AI analytics to relevant stakeholders.

Classroom Aids:

Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.

Tools, Equipment and Other Requirements

Python IDE (Jupyter/Google Colab), MS Excel, Tableau, Power BI, Telecom Data Samples (CDRs, CRM Logs, QoS logs), AI/ML sandbox platforms (Google Cloud AutoML, IBM Watson Studio, etc.), NLQ/NLG tool demo (Power BI Q&A), Data storyboarding templates.

Module 4: Support Implementation of AI Solutions in Telecom Operations

Mapped to NOS: TEL/N6609, v3.0

Terminal Outcomes:

- Deploy AI/ML models into containerised environments and integrate them with telecom OSS/BSS systems by using APIs and configuration files under supervision.
- Monitor model inference results, system performance metrics, and prediction anomalies using observability tools and generate reports to support performance evaluation.
- Maintain model version control and operational logs, as well as retrain datasets using appropriate tools and documentation practices in compliance with telecom protocols.

Duration: 40:00	**Duration: 50:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the architecture, structure, and functional purpose of various AI/ML model types (e.g., supervised vs. unsupervised; classification, regression, clustering) specifically applied to telecom use cases like churn prediction, fault detection, and traffic forecasting. • Identify and classify telecom data types such as CDRs, QoS logs, latency and jitter metrics, signal strength reports, and explain their relevance to AI models. • Interpret data serialisation formats, including CSV, Parquet, JSON, and SQL tables used for feeding and storing model inputs and outputs in large-scale telecom environments. • Describe the components and structure of RESTful APIs and ONNX model runtimes, including headers, payloads, endpoint methods (GET, POST), and authentication tokens used to interface ML models with telecom systems. • Summarise the function of deployment tools such as Docker (containerisation), Kubernetes (orchestration), and MLFlow (model lifecycle management), and how they are used to build, test, and deploy models in real-time telecom environments.	• Configure AI deployment environments by setting environment variables, installing dependencies, and managing virtual environments or containers using Dockerfiles and docker-compose configurations. • Containerise trained AI/ML models using Docker, ensuring proper inclusion of runtime dependencies, libraries (e.g., TensorFlow Serving, TorchScript), and environment specifications. • Show how to link and integrate model inference endpoints with telecom OSS/BSS systems or data pipelines using RESTful APIs or ONNX runtimes, configuring headers, payload schemas, and access controls. • Review and verify YAML or JSON configuration files to ensure correct data source paths, environment parameters, threshold values, and runtime constraints are defined. • Conduct dry-run deployments of containerised models in simulated telecom environments, validating data flow from source to inference output and ensuring end-to-end integrity. • Apply suitable techniques to identify and log deployment bottlenecks such as missing package dependencies, incompatible

- Illustrate the CI/CD and MLOps pipeline stages: code integration, model testing, container deployment, monitoring, and feedback loops, and how these are integrated into telecom deployment stacks.
- Discuss the utility of commonly used ML libraries and deployment platforms, including Scikit-learn, TensorFlow, PyTorch, and ONNX, for building and operationalising AI models in telecom networks.
- Evaluate key model performance indicators: precision, recall, F1-score, ROC AUC, inference latency, and throughput in the context of model effectiveness and service-level requirements in telecom.
- Analyse techniques for detecting and managing model drift, prediction anomalies, and performance decay, including trigger thresholds, alerting mechanisms, and retraining intervals.
- Identify mismatches between model predictions and real-world KPIs like call drop rate, throughput, latency, and support supervised adjustments under expert guidance.
- Illuminate on the concept of version control using Git, DVC, or ML registries for maintaining model version integrity, reproducibility, and rollback safety in high-availability telecom systems.
- Outline protocols for model inference and system-level logging, including types of logs (access logs, error logs, model audit trails), structured logging practices, and compliance with audit standards.
- Explain telecom-specific data security, user privacy, and compliance norms (e.g., DoT, GDPR) relevant to handling AI-driven decisions and sensitive customer or network data.
- Illustrate the procedure of drafting and reviewing version release notes, updating documentation, and rolling back instructions to communicate model changes effectively to relevant stakeholders.
- Summarise organisational SOPs for versions, or misconfigured ports and escalate to relevant teams with structured error logs.
- Role-play to collaborate with DevOps or MLOps teams to monitor CI/CD stages during model promotion to staging or production, ensuring successful build, test, and deploy phases.
- Use and interpret model inference outputs by comparing them against telecom-specific benchmark datasets using tools or scripts to compute ROC AUC, F1-scores, or error rates.
- Use observability tools like Grafana, Prometheus, or custom dashboards to track metrics like inference latency, memory usage, and prediction dropouts.
- Log and categorise prediction errors, out-of-distribution input anomalies, and alert events triggered by low-confidence predictions or unexpected behaviour.
- Show how to capture telemetry data from real-time network signals (e.g., packet loss, signal strength, bandwidth usage) feeding into deployed models and correlate it with inference results.
- Generate anomaly detection reports based on model output deviations or confidence thresholds and assist in preparing structured root-cause analysis during unexpected outcomes.
- Apply basic model optimisation techniques such as threshold tuning or reconfiguring hyperparameters (e.g., learning rate, regularisation) using recent performance logs and feedback.
- Show how to track and manage model versions using Git repositories or DVC pipelines, documenting each deployment or rollback action, performance metadata, and test outcomes.
- Prepare and organise structured datasets, filtered logs, and statistical summaries using tools like Pandas, SQL, or NumPy to support periodic retraining or drift detection analysis.
- Employ appropriate ways to maintain operational logs, model update journals, and inference audit trails in standardised

incident escalation, model failure documentation, and collaborative feedback for continuous improvement of AI systems in telecom operations.	formats for traceability, audit readiness, and performance history documentation.
Classroom Aids:	
Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	
Tools, Equipment and Other Requirements	
Docker, Kubernetes, MLFlow, Git, GitLab or GitHub, VS Code, REST API testing tool (Postman), Grafana, Prometheus, Telecom Data Samples (CDRs, CRM Logs, QoS logs), Python Libraries/Frameworks (Pandas, Scikit-learn, TensorFlow, PyTorch, ONNX), DVC, SQL engine (MySQL/PostgreSQL), YAML/JSON editors, Network simulator (for testbed environment), Telecom OSS/BSS integration sandbox.	

Module 5: Organise Work and Resources as per Health and Safety Standards

Mapped to NOS: TEL/N9101, v3.0

Terminal Outcomes:

- Demonstrate how to maintain an organised, clutter-free, and ergonomically safe workspace aligned with 5S and organisational SOPs.
- Apply standard health, safety, and environmental (HSE) practices, including hazard detection, PPE usage, and incident reporting as per workplace protocols.
- Use safe material handling, energy conservation techniques, and equipment maintenance procedures to ensure resource-efficient and risk-free operations.
- Perform systematic waste segregation and disposal in compliance with hazardous and e-waste guidelines.

Duration: 10:00	**Duration: 10:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the principles and importance of 5S methodology for workplace organisation. • Illuminate on the organisational SOPs related to workflow management, task allocation, and quality assurance. • Comprehend health, safety, and environmental policies, including national/international standards like ISO 45001 and ISO 14001. • Recognise common workplace hazards such as ESD, fire risks, electrical faults, and EMI interference, as well as their potential impacts. • Discuss different types and correct uses of personal protective equipment (PPE) in a drone maintenance environment. • Discuss various energy conservation practices relevant to lighting, HVAC, and equipment usage. • Explain the role and benefits of digital tools for logging, task management, and inventory control in a workplace organisation.	• Demonstrate how to organise and maintain a clean, clutter-free, and ergonomically safe workspace in compliance with 5S principles. • Use digital platforms or apps to log work progress, record material consumption, and update task checklists accurately. • Apply organisational SOPs to follow designated workflows and escalate delays or material shortages. • Show correct selection, usage, and disposal of PPE while handling drones, tools, and hazardous materials. • Role-play to report workplace hazards such as spills, loose wiring, or EMI sources in real time. • Perform safe lifting, equipment handling, and maintain correct posture during physical tasks to prevent injury. • Conduct lockout/tagout procedures before servicing electrical or moving drone components. • Demonstrate safe battery handling, charging, and storage processes using approved methods and equipment. • Demonstrate safe manual handling techniques, workstation ergonomics, and

	first aid basics for workplace injuries. ● Perform energy conservation actions such as switching off unused equipment and reporting any malfunctioning devices. ● Employ appropriate techniques to segregate and dispose of waste correctly into hazardous, recyclable, and e-waste bins following SOPs. ● Role-play effective communication of safety breaches, incidents, or health symptoms to supervisors or authorities promptly.
Classroom Aids	
Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	
Tools, Equipment and Other Requirements	
ESD Wrist Straps, PPE (gloves, goggles, reflective vests, Safety boots), First Aid Kit, Waste Bins (Recyclable, Non-recyclable, Hazardous), Fire Extinguisher, Digital Logbook or Task Management App, Mobile/Tablet Device, Sample E-waste Materials, Cleaning Supplies, Tool Trolley, Lockout/Tagout equipment	

Module 6: Interact Effectively with Team Members and Customers

Mapped to NOS: TEL/N9102, v3.0

Terminal Outcomes:

- Demonstrate effective communication with supervisors, stakeholders, and team members using appropriate verbal, non-verbal, and digital tools.
- Collaborate with team members to resolve conflicts, support inclusivity, and achieve shared goals in hybrid or in-person work environments.
- Apply emotional intelligence and cultural sensitivity while interacting with customers, colleagues, and persons with disabilities (PwDs).
- Role-play workplace situations involving feedback reception, conflict de-escalation, and inclusive participation to build a respectful work culture.

Duration: 10:00	**Duration: 10:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the organisational hierarchy and the roles and responsibilities of supervisors, team members, and stakeholders. • Describe professional etiquette for verbal, non-verbal, and digital communication in face-to-face and remote settings. • Explain the importance of clear communication, active listening, and timely information sharing at the workplace. • List commonly used communication tools (e.g., emails, messaging apps, video conferencing platforms) and their features. • Explain methods for giving and receiving feedback constructively within a professional context. • Identify common challenges faced by Persons with Disabilities (PwDs) and strategies for supporting them in the workplace. • Summarise the legal and organisational policies on diversity, equity, and inclusion. • Explain techniques for preventing and resolving conflicts through respectful dialogue and escalation when necessary.	• Demonstrate professional communication with supervisors or clients through various tools like email, chat, or virtual meetings. • Role-play a workplace situation where feedback is received and acted upon constructively to improve performance. • Apply emotional intelligence principles during group activities or customer interactions to build rapport and cooperation. • Engage appropriate conflict resolution techniques to de-escalate disagreements and restore team harmony. • Display inclusive behaviour, cultural sensitivity, and emotional intelligence while interacting with people from diverse backgrounds and PwDs. • Role-play to collaborate with peers on group tasks, aligning with team goals while respecting individual contributions. • Conduct a virtual meeting adhering to digital etiquette, ensuring participation and accessibility for all. • Facilitate respectful team discussions where all voices are heard, and equal opportunity for input is maintained.

Classroom Aids
Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.
Tools, Equipment and Other Requirements
Feedback forms, Communication tool, etc.

Module 7: DGT/VSQ/N0102: Employability Skills (30 Hours)

Mandatory Duration: 30:00			
Location: On-Site			
S.No.	**Module Name**	**Key Learning Outcomes**	**Duration (hours)**
1.	Introduction to Employability Skills	• Discuss the importance of Employability Skills in meeting the job requirements	1 Hour
2.	Constitutional values - Citizenship	• Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen. • Show how to practice different environmentally sustainable practices	1 Hour
3.	Becoming a Professional in the 21st Century	• Discuss 21st century skills. • Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations.	1 Hour
4.	Basic English Skills	• Use appropriate basic English sentences/phrases while speaking	2 Hours
5.	Communication Skills	• Demonstrate how to communicate in a well -mannered way with others. • Demonstrate working with others in a team	4 Hours
6.	Diversity & Inclusion	• Show how to conduct oneself appropriately with all genders and PwD • Discuss the significance of reporting sexual harassment issues in time	1 Hour
7.	Financial and Legal Literacy	• Discuss the significance of using financial products and services safely and securely. • Explain the importance of managing expenses, income, and savings. • Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws	4 Hours
8.	Essential Digital Skills	• Show how to operate digital devices and use the associated applications and features, safely and securely • Discuss the significance of using internet for	3 Hours

		browsing, accessing social media platforms, safely and securely	
9.	Entrepreneurship	• Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges	7 Hours
10.	Customer Service	• Differentiate between types of customers • Explain the significance of identifying customer needs and addressing them • Discuss the significance of maintaining hygiene and dressing appropriately	4 Hours
11.	Getting ready for apprenticeship & Jobs	• Create a biodata • Use various sources to search and apply for jobs • Discuss the significance of dressing up neatly and maintaining hygiene for an interview • Discuss how to search and register for apprenticeship opportunities	2 Hours

LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS		
Sl No.	**Name of the Equipment**	**Quantity**
1	Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below)	As required
2	UPS	As required
3	Scanner cum Printer	As required
4	Computer Tables	As required
5	Computer Chairs	As required
6	LCD Projector	As required
7	White Board 1200mm x 900mm	As required
Note: Above Tools &Equipment not required, if Computer LAB is available in the institute.		

Module 8: On-the-Job Training

Mapped to QP: TEL/Q6602, v3.0

Mandatory Duration: 150:00	**Recommended Duration: 00:00**
Location: On-Site	

Terminal Outcomes

- Demonstrate how to extract telecom datasets from structured sources like SQL databases and flat files.
- Use Python libraries such as Pandas and NumPy to clean, transform, and prepare telecom data.
- Apply data validation techniques to ensure completeness, accuracy, and consistency of telecom records.
- Perform basic feature engineering tasks to prepare data for AI-based analysis.
- Construct an ETL (Extract, Transform, Load) pipeline using tools like Apache Airflow or Python scripts.
- Operate data scraping tools or APIs to collect real-time usage or service data from network sources.
- Document data quality issues and escalate unresolved discrepancies to the relevant data management teams.
- Perform classification and clustering using ML algorithms like Logistic Regression, Decision Trees, and K-Means on telecom data.
- Evaluate model performance using metrics such as precision, recall, F1-score, and accuracy.
- Generate business dashboards using tools such as Tableau, Power BI, or MS Excel to visualise telecom KPIs (e.g., churn rate, ARPU).
- Apply Natural Language Query (NLQ) and Natural Language Generation (NLG) tools to interpret telecom analytics in plain language.
- Develop predictive models to forecast customer churn or network load using historical datasets.
- Construct automated business intelligence reports with actionable insights for marketing or operations teams.
- Present insights and predictive trends through structured storytelling and data visualisation techniques.
- Deploy ML models in containerised environments using Docker and validate integration with OSS/BSS systems.
- Assist in linking AI model endpoints with data pipelines using REST APIs and appropriate configuration files.
- Monitor inference results, latency, and system metrics using tools like Grafana or Prometheus.
- Log model predictions, anomalies, and out-of-distribution data for error analysis and future retraining.
- Maintain model version history using Git or DVC and assist in rollback or retraining processes as directed.
- Apply effective file and resource organisation practices for data storage, backups, and workspace hygiene.

Annexure

Trainer Requirements (AI & ML – Jr. Telecom Data Analyst)

Trainer Pre-requisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Diploma after 12th Class	Computer Science, Electronics, IT or Telecommunications	2	AI/ML model development or deployment, Telecom data analysis or telecom OSS/BSS environments	1	NA	Eligible for ToT program
Graduate	Computer Science, Electronics, Telecommunications, IT or Applied mathematics / statistics	2	AI/ML model development or deployment, Telecom data analysis or telecom OSS/BSS environments	-	NA	Eligible for ToT program
MCA	Data Science/Artificial Intelligence/Machine Learning	-	-	-	-	Eligible for ToT program

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role " **AI & ML – Jr. Telecom Data Analyst**" mapped to "TEL/Q6602, version 3.0", Minimum accepted score is 80%	Certified for Job Role: "**Trainer (VET and Skills)",** mapped to Qualification Pack: **"MEP/Q2601, v3.0",** Minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements (AI & ML – Jr. Telecom Data Analyst)

Assessor Pre-requisites						
Minimum Educational Qualification	**Specialisation**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialisation***	***Years***	***Specialisation***	
Diploma after 12th Class	Computer Science, Electronics, IT or Telecommunications	2	AI/ML model development or deployment, Telecom data analysis or telecom OSS/BSS environments	1	NA	Eligible for ToA program
Graduate	Computer Science, Electronics, Telecommunications, IT or Applied mathematics / statistics	2	AI/ML model development or deployment, Telecom data analysis or telecom OSS/BSS environments	-	NA	Eligible for ToA program
MCA	Data Science/Artificial Intelligence/Machine Learning	-	-	-	-	Eligible for ToA program

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role " **AI & ML – Jr. Telecom Data Analyst**" mapped to "TEL/Q6602, version 3.0", Minimum accepted score is 80%	Certified for Job Role: "**Assessor (VET and Skills)",** mapped to Qualification Pack: **"MEP/Q2701, v3.0",** Minimum accepted score as per MEPSC guidelines is 80%.

Trainer Requirements (Employability Skills 30 hours)

Trainer Pre-requisites						
Minimum Educational Qualification	**Specialisation**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	**Specialisation**	**Years**	**Specialisation**	
Graduate/CITS	Any discipline			2	Teaching experience	Prospective ES trainer should: • have good communication skills • be well versed in English • have digital skills • have attention to detail • be adaptable • have willingness to learn
Current ITI trainers	Employability Skills Training (3 days full-time course done between 2019-2022)					
Certified current EEE trainers (155 hours)	from Management SSC (MEPSC)					
Certified Trainer	Qualification Pack: Trainer (MEP/Q0102)					

Trainer Certification	
Domain Certification	**Platform Certification**
Certified in 30-hour Employability NOS (2022), with a minimum score of 80% OR Certified in 120- OR 90- OR 60-hour Employability NOS (2022), with a minimum score of 80%	NA

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.
    - The 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 the 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 and verified by the other subject Matter Experts.
    - Questions are mapped with NOS and PC.
    - Question papers are prepared considering that level 1 to 3 are for the unskilled & semi- skilled individuals, and level 4 and above are for the skilled, supervisor & higher management.
    - An assessor must be ToA certified & the trainer must be ToT Certified.
    - The 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 the 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:
    - A surprise visit to the assessment location.
    - A 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.

Assessment Strategy (Employability Skills 30 hours)

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	A key learning outcome is a 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 upon the completion of the training.
Terminal Outcome	The 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
NOS	National Occupational Standard (s)
NSQF	National Skills Qualifications Framework
OJT	On-the-job Training
QP	Qualifications Pack
PwD	People with Disability
PPE	Personal Protective Equipment
AI	Artificial Intelligence
ML	Machine Learning