

SOFTWARE REQUIREMENTS SPECIFICATION (SRS)

Integrated Inspection, Testing & Training Management Platform

Version: Consolidated Draft

Scope: Inspection, Testing, Training, Operator Certification, Finance, HR, Assets, Tools, Controlled Stock

Compliance Target: ISO/IEC 17020:2012 (Primary), ISO 9001 (Supportive)

1. INTRODUCTION

1.1 Purpose

This document defines the complete functional and operational requirements of an **Integrated Inspection, Testing, Training, and Certification Platform**, covering the full lifecycle from **service definition** → **quotation** → **job order** → **field execution** → **controlled document issuance** → **publishing** → **finance invoicing** → **audit**.

The document is intended to be:

- **Implementation-ready** for software development teams
- **Audit-ready** for ISO/IEC 17020 assessors
- **Operationally accurate**, reflecting real inspection, testing, and training practices

No content has been removed; all workflows have been normalized and aligned.

1.2 System Objectives

The system shall:

- Enforce **service-level governance** via a centralized Service Master Registry
- Support **offline-first execution** for inspections, testing, and training
- Maintain **full traceability** of tools, assets, stickers, certificates, wallet cards, and approvals
- Prevent **unauthorized execution, issuance, or billing**
- Produce **verifiable, controlled outputs** (reports, certificates, cards)
- Support **finance invoicing based strictly on executed work**

1.3 System Scope

The platform covers:

- Inspection services (equipment, lifting, electrical, scaffolding, etc.)
- Testing services (NDT & non-NDT)
- Operator assessment & certification
- Training delivery & certification
- Controlled stationery (stickers, letterheads, wallet cards)
- Tools, instruments & calibration
- Company assets
- HR competence & authorization
- Finance & invoicing
- Client directory & client portal

2. SYSTEM ARCHITECTURE (LOGICAL MODULES)

2.1 Core Functional Modules

1. Service Master Registry (Quality-controlled)
2. Client Directory & Client Portal
3. Quotation Management
4. Job Order Management & Scheduling
5. Field Execution (Inspection / Testing / Training / Certification)
6. FIR Management
7. Document Issuance & Publishing
8. Sticker Management
9. Certificate Letterhead & Wallet Card Stock Control
10. Tools, Instruments & Assets Registry
11. HR & Competence Management
12. Finance & Invoicing
13. Reporting, Audit & Compliance

3. ROLES & ACCESS CONTROL (RBAC)

3.1 System Roles (Non-Exhaustive)

- Admin
- Coordinator
- Inspector / Tester
- Trainer / Examiner
- Technical Manager
- NDT Manager
- Quality Manager
- Quality Executive
- Management Representative (MR)
- Document Controller
- Finance User

- Client Portal User (role-scoped)

3.2 RBAC Principles

- All permissions are **role-based**
- All actions are **audit logged**
- Inspectors and trainers **never see pricing**
- Quality owns governance artifacts (services, templates, formats)

4. SERVICE MASTER REGISTRY (GOVERNANCE BACKBONE)

4.1 Purpose

The Service Master Registry is the **single source of truth** for all services the organization performs.

No service may be:

- Quoted
- Executed
- Issued

unless it exists as a **published service version** in this registry.

4.2 Ownership

Owned by:

- Quality Manager
- Quality Executive
- Management Representative

Read-only for all other roles.

4.3 Service Definition Structure

Each Service contains:

Identity

- Service Code
- Service Name (EN/AR)
- Service Category

(Inspection / Testing / Training / Operator Certification / Calibration)

- Discipline (optional)
- Status (Active / Inactive)
- Effective Date

4.4 Execution Governance (Service-Level)

Each service version defines:

- Requires Equipment? (Mandatory / Optional / Not Required)
- Requires Person? (Mandatory / Optional / Not Required)
- Checklist template & minimum level
- “All OK” bulk completion allowed (Yes/No)
- Evidence rules
- Sticker requirement:
 - Required
 - Optional
 - Not Applicable
- Approval required? (Yes/No)
- Approver role(s)
- Validity rules (if applicable)

4.5 Output Definition

Each service defines outputs:

- Inspection Certificate
- Test Report
- Training Certificate
- Wallet Card
- Other controlled document

Each output links to:

- Template
- Letterhead category
- Background rules
- Numbering rules

4.6 Version Control

- Any change creates a new version
- Old versions are retained

- Job Orders reference the service version active at time of quotation
- No deletions allowed

5. CLIENT DIRECTORY & CLIENT PORTAL

5.1 Client Master Profile

Includes:

- Legal name (EN/AR)
- CR, VAT, National Address (PDFs)
- Head office details
- Bank details (optional)

5.2 Contacts & Departments

Structured contacts per department:

- Procurement
- Finance
- HSE
- Engineering
- Plant / Equipment
- Others

5.3 Projects Register

Each client may have multiple projects with:

- Site details
- Key contacts
- Equipment mapping

5.4 Client Portal

Clients may:

- View published documents only
- Download certificates/reports
- Track Job Orders
- View equipment history
- View invoices (restricted roles)

5.5 Client Notification Rules

Email-based notifications:

- Job Order Created
- Job Order Published
- FIR Issued

Recipients are selected from registered contacts.

All notifications are logged.

6. QUOTATION MANAGEMENT

6.1 Entry Rules

- Quotations can only use **published services**
- Pricing visible only to Coordinator/Admin/Finance

6.2 Quotation Lifecycle

Statuses:

- Draft
- Sent
- Accepted

Acceptance methods:

- PO
- Email confirmation
- Verbal confirmation (logged)

6.3 Line Items

Each quotation line item stores:

- service_id
- service_version_id
- snapshot of service name/description
- quantity
- unit price
- unit type
- VAT

6.4 Governance Rule

A Job Order **can only be created** from an **Accepted Quotation**.

7. JOB ORDER CREATION

7.1 Purpose

Translate commercial intent (quotation) into operational truth.

7.2 Scope Selection

- Coordinator may include/exclude quotation items
- Planned quantity may differ from quoted quantity
- Original quotation data is preserved

7.3 Preloaded Execution Instances

For each service with quantity > 0, the system generates execution instances:

- Inspection equipment slots
- Testing instances
- Training participant slots
- Operator certification slots

Execution is **service-driven**, not free-form.

7.4 Assignment

Coordinator assigns:

- Inspectors
- Testers
- Trainers
- Examiners

Authorization is enforced automatically.

7.5 Added-at-Site Scope

Inspectors may add services on-site:

- Execution allowed immediately
- Pricing hidden
- Marked “Added at Site”
- Requires coordinator approval before final issuance

7.6 Internal Inspection Request Form

Mandatory per Job Order.

Captures:

- Request source
- Date
- Evidence (PO/email/verbal)

Non-deletable and audit-locked.

8. JOB ORDER EXECUTION (INSPECTION & TESTING)

8.1 Offline-First Execution

- Job Orders sync to device
- Evidence stored locally
- Sync conflict handling enforced

8.2 Execution Flow

- Select service instance
- Identify equipment/person (as required)
- Capture identity data (OCR + confirmation)
- Execute checklist
- Capture evidence
- Record outcome
- Handle sticker (if applicable)

8.3 Sticker Handling

Sticker behavior governed by service policy:

- Required
- Optional
- Not Applicable

Sticker states:

- In Stock
- Issued
- Reserved (Offline/Online)
- Used

- Invalid

Sticker becomes **Used only when execution is finalized and document exists.**

9. FIR (FIELD INSPECTION REPORT)

9.1 FIR Rules

- Multiple FIRs allowed per Job Order
- FIR generated per visit/subset
- FIR numbering per JO

9.2 Client Signature

- Digital signature captured on device
- If client absent:
 - Email acceptance rule applies
 - Email evidence bound to FIR

10. DOCUMENT ISSUANCE & APPROVAL

10.1 Draft Generation

System generates:

- Plain (no background) PDFs
- Draft-only until approval and stock entry

10.2 Approval Routing

If service requires approval:

- Approver notified
- Reject → rework required

10.3 Numbering

- Non-sequential
- Non-guessable
- Controlled by system

11. LETTERHEAD & WALLET CARD STOCK CONTROL

11.1 Controlled Stock Types

- Inspection/Test letterheads
- Training letterheads
- Wallet cards

11.2 Issuance & Usage

- Stock issued to users
- User enters number after printing
- System validates uniqueness
- Mapping is immutable

12. OPERATOR CERTIFICATION EXECUTION

12.1 Modes

- On-site
- Off-site (secure link)

12.2 Outputs

- Wallet Card (default)
- A4 Certificate (only if required)

Wallet card number = **physical stock number**

System document ID remains separate.

13. TRAINING EXECUTION

13.1 Attendance & Assessment

- QR-based attendance
- QR-based assessment
- Digital signatures

13.2 Outputs

- Training certificate
- Wallet card

13.3 Finance Snapshot

Billing based on:

- Actual attendance
- Issued outputs

Finance cannot edit quantities or prices.

14. TOOLS, INSTRUMENTS & ASSETS REGISTRY

14.1 Tools & Instruments

- Calibration required flag
- Expiry enforcement
- Usage log auto-generated
- Calibration snapshot stored per usage

14.2 Assets

- Vehicles
- IT equipment
- Kits
- Furniture

Tracked by:

- Location
- Responsible person
- Movement history

15. HR & COMPETENCE MANAGEMENT

15.1 Staff Master

Single master record per staff.

15.2 Authorization Matrix

Staff authorization defined by:

- Service category
- Discipline
- Role
- Validity

System blocks unauthorized assignments.

16. FINANCE & INVOICING

16.1 Finance Entry Rule

Job Order becomes finance-ready only when:

- Execution completed
- Documents issued
- Quantities finalized

16.2 Billing Snapshot

Read-only snapshot generated by system.

16.3 Invoice Entry

Finance enters:

- Invoice number
- Amount
- Date

System enforces:

- Duplicate checks
- Amount tolerance
- SLA alerts

17. AUDIT, REPORTING & COMPLIANCE

System supports:

- ISO/IEC 17020 audits
- Tool usage logs
- Stock traceability
- Authorization records
- Change history
- Full lifecycle evidence

18. GLOSSARY

JO – Job Order

FIR – Field Inspection Report

Service Version – Governed version of a service definition

Execution Instance – Preloaded unit of work under a service

Added at Site – Scope added during execution, pending approval

Plain PDF – Document without background/letterhead

Final Archival Copy – Document with background and stock number

Wallet Card – Physical operator/training card

Sticker – Controlled inspection tag

RBAC – Role-Based Access Control