Product Requirement Document for Calibration Schedule

1. Context

Lab instruments require regular calibration for accurate results. Labs currently rely on manual tracking or spreadsheets, leading to missed events or non-compliance. The Auto-Calibrate Workflow Tracker will automate this process and integrate with internal systems.

2. Objectives

2.1 Business Objectives

- Improve lab efficiency and reduce instrument downtime
- Enhance compliance with ISO and GLP standards
- Improve customer satisfaction by reducing invalid results

2.2 User Objectives

- Track calibration schedule per instrument
- Get proactive alerts for upcoming/overdue calibration
- Log calibration events automatically into a report

3. Benefit Hypothesis

- If we implement a real-time calibration tracker with alerting, then labs will reduce missed calibrations by 80%, and Lab will improve NPS by delivering more consistent and compliant outcomes for researchers.

4. Epics & User Stories

Epic 1: Calibration Schedule Management

- Story 1.1: User can view calibration cycle for each instrument
- Story 1.2: System fetches manufacturer default calibration intervals

Epic 2: Alerts & Notifications

- Story 2.1: Trigger alerts when calibration due in 3/1/0 days
- Story 2.2: Notify via email, dashboard, or connected system

Epic 3: Logging & Reporting

- Story 3.1: Automatically log successful calibrations
- Story 3.2: Export audit-ready report per instrument/site

Epic 4: Validation & Feedback

- Story 4.1: QA team can validate alert accuracy pre-release
- Story 4.2: Track missed vs completed calibrations as success KPI

5. Requirements

4.1 Functional

- Track per-instrument schedule
- Alerting engine with time thresholds
- Integration with calibration workflow module
- Downloadable compliance report PDF

4.2 Non-Functional

- Uptime: 99.9%
- Alert SLA: < 5 sec
- Scalable to 10,000+ instruments
- Encrypted data in transit and rest

6. Success Metrics

Metric	Target
Calibration Compliance Rate	>95%
Alert Accuracy	>98%
Audit Pass Rate	100%
Uptime	>99.9%

7. Technical Stack Suggestion

- **Frontend:** Angular/React
- **Backend:** Node.js + PostgreSQL
- **Alert Engine:** AWS SNS or custom scheduler
- **Integration:** REST API to Internal Lab software
- **Security:** OAuth2 + Data masking for PHI where applicable