## Cross-Discipline Constraint Tracking Form

**Document Title:** Cross-Discipline Constraint Tracking Form  
**Purpose:**  
This document is created to list, classify, and track non-software constraints (environmental, legal, mechanical, safety, etc.) that affect system behavior.  
It is **not** a software requirements document.  
These items are **owned and validated by related engineering disciplines** and can be placed in the appendices of the System Requirements Document.



### Table of Constraints

| **System Requirement ID** | **Sub-system (SW/HW etc) Requirement ID** | **Discipline** | **Constraint Type** | **Description** | **Owner** | **Verification Method** | **Status** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SYS-01 | HW-01 | Electrical / Biomedical Engineering | Power & Safety Constraint | All NICU-connected IoMT devices shall operate under hospital electrical safety standards (IEC 60601-1). Leakage current ≤ 100 µA. | Biomedical Team | Compliance Testing & Certification | Proposed |
| SYS-02 | SW-01 | Legal / Regulatory | Data Protection Constraint | The system shall comply with GDPR and HIPAA regulations for neonatal data storage and transfer. | Legal & Compliance Team | Documentation Review & Audit | Active |
| SYS-03 | HW-02 | Environmental | Operating Environment Constraint | All sensing modules must operate reliably between 18–26°C and humidity 40–60%, as per NICU standards. | System Engineering | Enviromental Test | Proposed |
| SYS-04 | NET-01 | Networking / IT | | Communication Protocol Constraint | | --- | | Data transmission between devices and cloud backend shall have latency ≤ 200 ms under standard NICU Wi-Fi conditions. | Network  Engineering | Latency Test / Simulation | Proposed |
| SYS-05 | SW-02 | Cybersecurity | Access Control Constraint | Access to patient dashboards shall be authenticated via hospital SSO and 2FA. | Security Engineering | Penetration Test | Proposed |
| SYS-06 | HW-03 | Mechanical | Physical Constraint | IoMT sensor modules attached to incubators shall weigh ≤ 200 g each to avoid structural imbalance. | Mechanical Team | Design Verification | Proposed |
| SYS-07 | SW-03 | Ethical / Legal | Data Anonymization Constraint | All real patient signal data must be anonymized before AI model training. | Compliance / AI Team | Code Review & Audit | Active |

### Notes

* These constraints are **not** determined by software engineering and **do not belong** in the Software Requirements Document.
* Software engineering **validates** behavior only where the system interacts with these constraints.
* Each item listed here **must be traceable** to a System Requirement.



### Traceability Reference

This document supports:

* System Requirements Document (SRD)
* Product Assurance and Compliance Documentation
* MÜDEK Outcome: Interdisciplinary Integration & Constraint Awareness



### Signature & Approval

* **Prepared by:** Software Engineering Team
* **Approved by:** System Engineering Lead
* **Revision:** 1.0
* **Date:** 25 October 2025



## Short Explanation

**Software Engineering does not define interdisciplinary constraints.**  
These items are **owned** by responsible disciplines.  
Software **only ensures system behavior under these constraints** through appropriate verification methods.  
This form exists for visibility and traceability, not for defining other engineering fields’ requirements.

