System Engineering Facility Application Form

A. Applicant Details:

1. Organization Name:
2. Type of Entity: ☐ Startup ☐ MSME ☐ Industry ☐ Academic ☐ Other: _____
3. Year of Establishment:
4. Registered Address:
5. Website (if any):
6. Primary Contact Person:
    - Name:
    - Designation:
    - Email:
    - Phone:

B. Technical Profile

1. Project Name:
2. Domain of Operation:
   (e.g., Automotive, Aerospace, Electronics, Defense, Healthcare, Energy etc.)
3. Key Products/Services:
4. IPR Status:
5. Technology Readiness Level (TRL) of Current Project:
   ☐ TRL 1–3 (Concept/Research) ☐ TRL 4–6 (Prototype/Validation) ☐ TRL 7–9 (Deployment/Commercialization)
6. Existing Tools/Software Used (if any):
   (e.g., CAD, PLM, MATLAB, Simulation, MBSE tools etc)
7. Technical Specifications: [If available, provide any technical details or constraints]
8. Brief Description of the Problem Statement / Project:
9. Expected Outcomes / Deliverables:
10. Reference images/ Flowchart/diagrams:
11. Dependencies or Constraints (Technical, regulatory, supply chain)

C. System Engineering Requirements

- Nature of Support Required:

1. Systems Engineering & Architecture

☐ Requirements Engineering
☐ Use Case / Operational Scenario Definition
☐ Functional Analysis & Functional Architecture
☐ System Architecture (Logical / Physical)
☐ Interface Definition & Management
☐ Verification, Validation and System Integration Planning

2. Model-Based Systems Engineering (MBSE) & Simulation

☐ SysML Modeling
☐ Model Architecture Development
☐ Model Integration with Existing Tools
☐ Simulation & Model Validation
☐ System-level Simulation
☐ System Performance Analysis

3. Digital Engineering & Lifecycle Management

☐ Digital Twin Development
☐ Configuration & Change Management
☐ Lifecycle Management / PLM Integration
☐ Documentation Standardization

Timeline for Engagement:
☐ Immediate ☐ 1–3 Months ☐ 3–6 Months ☐ Flexible

D. Additional Information

- Any Existing Documentation (Concept Notes, Drawings, etc.):
  ☐ Yes (Please attach) ☐ No
- Other Remarks or Expectations:

E. Declaration:

- I/We confirm that all the information provided in this application is accurate, complete, and true to the best of my/our knowledge.
- I/We confirm that I/we am/are the rightful owner(s) of the this project/development or idea submitted for the System Engineering Facility, and that this work does not infringe on the intellectual property rights of any third party.

F. Signature of the Applicant:

- Name:
- Designation
- Date:
- Seal of the office

Please Note:

- Submit this application along with all supporting documents to [designated email address or contact person at NRDC].
- Any additional information (if required) may be discussed and shared.

Notes for ref on Category / Sub-Service Explanation of Support under SEF

1. Systems Engineering & Architecture

Focuses on the foundational structure and definition of the system.

- Requirements Engineering
  Assistance in structured capture, analysis, verification, and management of stakeholder needs and system requirements.
- Use Case / Operational Scenario
  Defining and modeling how the system interacts with users and external systems in various operational environments.
- Functional Analysis & Functional Architecture
  Breaking down system functions, defining system flows, and structuring the functional relationships between components.
- System Architecture (Logical / Physical)
  Designing the conceptual (logical) and physical arrangement of system components, interfaces, and connections.
- Interface Definition & Management
  Defining and controlling the technical specifications for all internal and external system connections and interactions.
- Verification, Validation and System Integration Planning
  Developing comprehensive plans and strategies to test, integrate, and validate the system's performance against defined requirements.

2. Model-Based Systems Engineering (MBSE) & Simulation

Focuses on using models as the central authority for system design and analysis.

- SysML Modeling
  Developing visual, formal models of the system's structure, behavior, requirements, and parameters using the Systems Modeling Language (SysML).
- Model Architecture Development
  Structuring the organization of models to ensure consistency, scalability, and reusability across the project lifecycle.
- Model Integration with Existing Tools
  Connecting system models with other tools (e.g., CAD, FEA, MATLAB) for a cohesive digital design environment.
- Simulation & Model Validation
  Running behavior simulations and analysis on the system model to ensure the model accurately represents the real-world system.
- System-level Simulation
  Modeling and simulating the performance and interaction of the complete system and its environment, often for complex dynamic analysis.
- System Performance Analysis
  Using models and simulations to quantify key performance indicators (KPIs) like throughput, latency, reliability, and efficiency.

3. Digital Engineering & Lifecycle Management

Focuses on managing the digital thread of the system throughout its life.

- Digital Twin Development
  Creating a virtual, real-time representation of a physical system or prototype for monitoring, testing, and predictive analysis.
- Configuration & Change Management
  Establishing a system to track, control, and approve all changes to the design and documentation throughout the project lifecycle.
- Lifecycle Management / PLM Integration

  Guidance on selecting, configuring, or integrating Product Lifecycle Management (PLM) tools and processes for long-term project sustainability.