**Algorithm/Sub-Model Documentation Template**

**1. Title**

**Algorithm/Sub-Model Name:** [Enter Name]  
**Version:** [Version Number]  
**Author(s):** [Your Name]  
**Date Created:** [DD/MM/YYYY]  
**Last Updated:** [DD/MM/YYYY]

**2. Overview**

**Purpose:**  
[Briefly describe the goal of this algorithm or sub-model. What problem does it solve?]

**Scope:**  
[Explain where this model fits within the overall system.]

**3. Inputs & Outputs**

| **Input Name** | **Description** | **Data Type** | **Units** |
| --- | --- | --- | --- |
| [Input 1] | [Description] | [Type] | [Unit] |
| [Input 2] | [Description] | [Type] | [Unit] |

| **Output Name** | **Description** | **Data Type** | **Units** |
| --- | --- | --- | --- |
| [Output 1] | [Description] | [Type] | [Unit] |
| [Output 2] | [Description] | [Type] | [Unit] |

**4. Mathematical Model / Algorithm Description**

[Provide the core equations, transformations, or logical steps used in this sub-model. If it follows a specific scientific principle, reference it.]

**Key Equations:**

Equation1Equation 1 Equation2Equation 2

**Flowchart / Diagram (If Applicable):**

[Insert a diagram or describe the step-by-step logical flow.]

**5. Implementation Details**

**Simulink Blocks Used:**  
[List the major Simulink blocks involved and their purpose.]

**Dependencies:**

* [List MATLAB scripts, functions, or external toolboxes required.]

**Initialization/Configuration:**  
[Explain any required initialization steps or configuration settings.]

**6. Testing & Validation**

**Test Cases:**

| **Test Case** | **Input(s)** | **Expected Output** | **Pass/Fail** |
| --- | --- | --- | --- |
| Test 1 | [Values] | [Expected] | [✔/✖] |
| Test 2 | [Values] | [Expected] | [✔/✖] |

**Simulation Results:**  
[Summarize key results with plots, tables, or screenshots.]

**7. Future Improvements**

[List possible optimizations, known issues, or enhancements for future versions.]

**8. References**

[Include references to research papers, documentation, or standards if applicable.]

**End of Document**