**Project Design Phase-II**  
**Solution Requirements (Functional & Non-functional)**  
**Date**: 1 july 2025  
**Team ID**: LTVIP2025TMID38158  
**Project Name**: CleanTech  
**Maximum Marks**: 4 Marks

### 🔹 Functional Requirements

| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| --- | --- | --- |
| FR-1 | Image Upload | User can upload waste images |
| FR-2 | Prediction Output | System classifies image as biodegradable, recyclable, trash |
| FR-3 | Model Integration | Uses pre-trained VGG16 model |
| FR-4 | Flask Web Interface | Frontend with upload, display, and results |

### 🔸 Non-Functional Requirements

| **NFR No.** | **Non-Functional Requirement Description** |
| --- | --- |
| NFR-1 | Usability: Simple UI for image upload and classification |
| NFR-2 | Security: Basic file size/type validation |
| NFR-3 | Reliability: Consistent predictions across sessions |
| NFR-4 | Performance: Fast classification using VGG16 inference |
| NFR-5 | Availability: Hosted locally or deployable to cloud (optional) |
| NFR-6 | Scalability: Future-ready for Docker/containerized deployment |