Model phase template

Date	15 February 2026
Team ID	LTVIP2026TMIDS66183
Project Title	Civil Engineering Insight Studio
Maximum Marks	10 Marks

Initial Model Training Code, Model Validation and Evaluation Report

This project does not involve custom machine learning model training. Instead, it utilizes **analytical processing models** to analyze structured civil engineering project data. Therefore, this phase focuses on model initialization, rule-based computation, analytical processing, and output evaluation rather than traditional model training and validation.

Model Initialization and Integration (5 marks):

The analytical processing model used in the **Civil Engineering Insight Studio** project is based on predefined rules and statistical calculations implemented within the application backend. The model is initialized by configuring project-specific parameters such as progress thresholds, cost variance limits, and scheduling constraints.

The system receives structured inputs including project details, construction progress updates, cost data, resource utilization, and schedule information. Based on these inputs, the analytical model computes key performance indicators such as project completion percentage, cost variance, schedule variance, and resource efficiency metrics.

Model Validation and Evaluation Report (5 marks):

Model validation in the **Civil Engineering Insight Studio** project ensures that the analytical processing model produces accurate, consistent, and reliable project insights. Since the project uses rule-based and statistical analytical models rather than trained machine learning models, validation focuses on correctness of computations and reliability of outputs.

Validation is performed by comparing the model-generated metrics, such as project progress percentage, cost variance, and schedule variance, with manually calculated results using sample project data. Input boundary testing is conducted to verify that the model handles minimum, maximum, and invalid values correctly. Consistency checks ensure that repeated inputs produce identical results, confirming model stability.